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the severity of interpersonal difficulties related to sensitivity to unconscious  
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## ABSTRACT

Despite a growing literature supporting the view of a dynamic unconscious, there have been few attempts to empirically investigate the role of unconscious processes in relation to existing models of psychopathology. In this study, the concept of transliminality (defined as ‘a hypothesised tendency for psychological material (trans) thresholds (limines) into or out of consciousness’, Thalbourne & Houran, 2000, p. 853) and a standardised self-report measure of this construct were used to explore relationships between unconscious processes and interpersonal difficulties. Transliminality and two of the central components of the mentalization-based model of interpersonal difficulties – attachment hyperactivity and mentalization, were examined. The mentalization model was seen as a fitting context for this investigation given that mentalization draws on attachment theory, psychoanalytic principles and makes reference to unconscious processes. Using standardised self-report measures this study attempted to answer two research questions. Firstly, is transliminality related to interpersonal difficulties and what is the nature of this relationship? Secondly, does transliminality mediate the effects of mentalization and attachment hyperactivation on interpersonal difficulties? These questions were investigated using a clinical sample recruited from two NHS specialist adult psychological therapies services ( $N = 16$ ) receiving referrals for those between the age of 18 to 65 and a non-clinical sample ( $N = 60$ ). The data from the non-clinical sample revealed that transliminality, mentalization and attachment hyperactivity were all predictors of interpersonal difficulties. The variance uniquely accounted for by each predictor and the lack of relationships between them, was seen as a reflection of these constructs representing distinct psychological processes that contribute to interpersonal difficulties. Kernberg’s (1975) notion of borderline continuum and Kelly’s (1955, 1977) personal construct theory were used to explain the role of transliminality. The etiological pathways common to psychosis and interpersonal difficulties were seen as a possible explanation as to why high levels of transliminality are found in both of these populations. It is hypothesised that a necessity to revise constructs more frequently in response to traumas is facilitated by transliminal states, which allow

construct boundaries to shift. Clinical implications and future research possibilities are considered in light of these findings.

## **1. BACKGROUND AND INTRODUCTION**

### **1.1. Literature review**

#### 1.1.1. Context of this review

There is a growing evidence-base supporting the idea of a dynamic unconscious (for reviews see Dehaene, Changeux, Naccache, Sackur & Sergent, 2006; Bargh & Morsella, 2008) capable of yielding a significant influence on thoughts, feelings and behaviour, however there have been few attempts to empirically test these findings against existing theories of psychopathology. This gap in the literature exists alongside a proliferation of widely used psychological models that include unconscious components or processes. This can in part be attributed to the prevailing influence of cognitive, science which has dominated the research and clinical psychology practice landscape since the nineteen seventies. While cognitive and cognitive-behavioural theories acknowledge the unconscious within the parameters of memory models that consist of long-term stores, their emphasis has been on the content of conscious thoughts that are available via introspection for the purpose of rational appraisal and modification (e.g. Beck, 1995). The readiness of cognitive scientists to embrace the evidence-based practice agenda has played a significant role in this period of domination. While empiricism sits well with the realist assumptions of cognitive science, the psychodynamic tradition has failed to address its own epistemological incoherence (Roustang, 1984), which has contributed to it becoming increasingly marginalised by the scientific community. Evidence of this can be seen in the marked reduction in the use of citations of psychodynamic papers (Friman, Allen, Kerwin & Larzelere, 1993) and the succession of National Institute of Clinical Excellence (NICE) guidelines supporting the use of Cognitive Behaviour Therapy (CBT) as a frontline treatment for numerous diagnostic categories (e.g. NICE,



2009a, 2009b) ahead of psychodynamic therapies. In short, the psychodynamic tradition has been rather slow to respond to the increasingly scientific context of psychotherapy and ineffectual in providing an evidence-based alternative. As a consequence, many of the central ideas have fallen down the priority list of psychology researchers or off the agenda all together.

The Freudian model of the unconscious being the primary guiding factor in daily life (Freud, 1925/1961, p. 31) is one such idea that has received little attention until the last decade. The emergence of a substantial literature supporting a sophisticated and dynamic unconscious, has validated this tenet of psychodynamic theory but as yet there have been few attempts to capture the influence of the unconscious using empirical approaches in relation to existing models of psychopathology.

Although the measurement of unconscious processes in psychological therapies has not been pursued by researchers, evidence-based models of psychopathology drawing on psychodynamic ideas have begun to appear. Mentalization based Therapy (MBT; Bateman & Fonagy, 2000) is one such model that was initially developed as a therapeutic approach for people experiencing severe interpersonal difficulties. This model draws heavily on attachment theory (Bowlby, 1969, 1973) and includes an unconscious 'attachment representation' component, which plays a significant role in determining thoughts, feelings and behaviours in relationships with others. Additionally, interpersonal difficulties (IPD) have historically been the domain of psychodynamic theorising with the development of borderline personality disorder (BPD) as a diagnostic category stemming largely from psychodynamic views of personality formation. Interpersonal difficulties and the MBT model thus provided the researcher with an appropriate context in which unconscious processes could be examined both in relation to old and new models of psychopathology.

This thesis attempts to scrutinize the theoretical understanding of IPD to provide some indication of how the measurement of unconscious processes using the construct of transliminality (Thalbourne, 1991) can contribute to theory and clinical practice. Accordingly, this review considers the following literatures:

Transliminality, IPD, Psychodynamic theories of interpersonal difficulties and MBT approaches to the treatment of IPD.

### 1.1.2. Scope of review

Literature from English language studies relating to Transliminality, IPD, Psychodynamic theories of IPD and MBT approaches to the treatment of IPD were reviewed to provide a theoretical context for the research.

### 1.1.3. Search strategy

It was not possible to systematically review the literature relating to the topics of interest as this thesis investigates several well established areas of psychological research each with an extensive evidence-base. Instead, a pragmatic but replicable approach was adopted in order to draw together literature and provide a narrative review. To this end different search strategies for each area of research were conducted giving consideration of the breadth and relevance of each literature. The search strategies used and the justification for these were as follows:

#### *1.1.3.1 Transliminality search strategy*

Searches were undertaken using electronic bibliographic databases from PsycINFO, Psychoanalytic Electronic Publishing (PEP), Medline, Embase, OVID Social policy and practice, Scopus, SwetsWise, Article First (OCLC), Web of Knowledge and Applied Social Sciences Index, and Abstracts (ASSI). The search term for Transliminality was (transliminal\$) included in titles, abstracts or the main body of text. Transliminality is a relatively new psychological construct hence the use of highly sensitive search terms with a view to gathering all of the peer-reviewed research related to this topic. This search yielded 16 results all of which were relevant. However, a significant portion of Transliminality literature was not found using this search strategy as numerous relevant non-peer reviewed papers were referenced in these papers. Subsequently, non-peer reviewed papers were obtained from these reference lists. References from these papers were also obtained and the abstracts reviewed. This approach yielded a

further 18 relevant papers. Non-peer reviewed publications were subsequently included in the review, however, the findings were cautiously evaluated.

#### *1.1.3.2. Interpersonal difficulties search strategy*

The focus of this aspect of the literature review focused on the origins and meaning of the construct within personality disorder literature. Consequently historical reviews of the development of the construct were sought. Searches were undertaken using the same electronic bibliographic databases listed for the transliminality literature search. The search terms were ((interpersonal AND (problem\$ OR difficult\$)) OR (personality adj disorder\$)) AND (review))) with the first two terms appearing in the abstract and 'review' appearing in the title. This produced 126 results of which 30 were relevant. Papers of particular relevance referenced in these reviews were also obtained.

#### *1.1.3.3. Psychodynamic theories of interpersonal difficulties search strategy*

As with the interpersonal difficulties search, reviews were sought as a starting point from which to examine relevant psychodynamic theories. The searches of titles and abstracts using the same databases were conducted using the following terms: ((Psychoanal\$) or (psychodynamic) AND ((interpersonal adj difficult\$) OR (interpersonal adj problem)) AND (personality adj disorder) AND (review)). This produced 154 results of which 14 were relevant. Papers of particular relevance referenced in these reviews were also obtained.

#### *1.1.3.4. Mentalization search strategy*

The aim of this literature review was to provide an overview of MBT theory and practice. To this end, a book titled 'Mentalization-based Treatment for Borderline Personality Disorder: A Practical Guide' (Fonagy & Bateman, 2006) was the primary source of reference. A search of 'mentalization' from 2006 to 2013 yielded 42 results. These were screened in regards to substantial developments in MBT theory of which four were relevant.

#### 1.1.4. Transliminality literature review

##### *1.1.4.1. Consciousness*

In reviewing the transliminality construct, it is necessary to briefly consider the broader landscape of consciousness research in order to place transliminality in an epistemological context. This is a difficult task given the breadth of philosophical debates. Consequently, the definition of transliminality has been used as a starting point from which the constituent concepts are deconstructed and related to philosophical and epistemological positions.

The term 'transliminality', first used by Michael Thalbourne in the early 1990s, referred to 'an openness or receptiveness to impulses and experiences whose sources are in preconscious (or unconscious) processes' (Thalbourne, 1991, p. 182). The concept has since been developed as a consequence of evidence showing that transliminality is a two-way subliminal-supraliminal process: Supraliminal (or conscious) processes play a significant role in arousing unconscious psychological material and material originating in the unconscious that is then shaped into themes by various creative processes. To account for this two-way process, the definition of transliminality became 'a hypothesised tendency for psychological material (trans) thresholds (limines) into or out of consciousness', Thalbourne & Houran, 2000, p. 853).

In referring to conscious processes it must be assumed that Thalbourne is speaking of consciousness as a phenomenon akin to 'sentience, awareness, subjectivity, the ability to experience or to feel, wakefulness, having a sense of selfhood, and the executive control system of the mind' (Farthing, 1994). While there is inherent difficulty constructing a definition that encapsulates the phenomenological experience of consciousness (Farthing's is just an example of many with nuanced differences), there is widely held consensus of what consciousness is, based on a broadly shared underlying intuition derived from the subjective experience of consciousness (Searle, 2005). As such, consciousness is genuine experience arising as consequence of the physical properties of the brain.

Accepting that consciousness exists based on one's own introspection and 'a broadly shared intuition', is in a sense implicitly drawing on Cartesian Dualism and the notion of cogito ergo sum ('I think, therefore I am') (Descartes, 1644). There are of course counter theories, notably philosophical behaviourism and materialism which propose that only that which is observable can be considered real and hypothetical entities are therefore not real (Ryle, 1949; Wittgenstein, 1953). From these theories justification for behaviourist psychological research and neuroscience was derived. Indeed dualism has been largely disregarded amongst the scientific community because of the inability of this theory to account for interaction between the material (the body) and immaterial (the mind) (Rose, 2006). This has coincided with a decreasing interest in research concerned with resolving the problem of phenomenology (Rose, 2006). Although the problem of phenomenology remains, evidence from neuroscience has shown that there are representations and processes that relate to self-reported subjective experiences of consciousness (Lutz, Lachaux, Martinerie & Varela, 2002). While the principles of materialism, empiricism and reductionism reign amongst researchers examining consciousness, their efforts are in essence underpinned by this set of philosophical assumptions: (i) that consciousness exists derived from Dualist ideas and (ii) that it resides in the material world.

While it is not possible to do justice to these philosophical debates, it is important to be aware of the assumptions embodied in any research concerned with intra-psychic phenomena.

#### *1.1.4.2. The unconscious and preconscious*

The development of theories detailing unconscious processes and representations followed the work of 19<sup>th</sup> Century psychophysicists (Fechner, 1860; Wundt, 1874) who were interested in relating material stimuli to the contents of consciousness. Their experimental research findings informed the work of Herbart (1896) who was the first to refer to psychological 'thresholds' of stimulation necessary to activate the sensory system. William James (1902) subsequently took the notion of consciousness existing above a stimulation threshold further in espousing the view that we are subject to unaccountable impulses to act. James made reference to an 'extra-marginal' field of

psychological material that is not conscious but nonetheless yields influence on thoughts, feelings and behaviour, and was the first to identify some kind of seepage unbeknown to subject from the unconscious to the conscious, described by James as 'uprushes' from 'subliminal parts of the mind' (James 1902/1982, p. 232). The term 'transliminal' was first used by Usher and Bert (1909) to describe the flow of psychological material between subliminal and supraliminal consciousness.

#### *1.1.4.3. Evidence from psychology and neuroscience*

The predominance of cognitive science from the seventies through to the early nineties left unconscious research out in the cold. Researchers focused their attention on cognition with thought viewed as the conscious manipulation of ideas and imagery for a specific purpose (Newell & Simon, 1972). Memory was understood as being responsible for transporting thoughts into consciousness (Atkinson & Shiffrin, 1968). While cognitive models primarily described conscious processes, they were based on the assumption that memory systems included 'long-term' components containing psychological material that was outside of conscious awareness. While this denotes an unconscious of sorts, the key distinction between cognitive scientists and psychoanalysts is that the former believed that thoughts, feelings and emotions were only able to influence behaviour when entering consciousness as opposed to the view that psychological material can yield influence without conscious awareness.

Evidence from priming studies (e.g., Bowers & Schacter, 1990; Schacter, 1992), studies of the performance of complex procedures (e.g. Wilson, 1996) and brain injury studies (e.g. Milner, Corkin, & Teuber, 1968) have clearly demonstrated that unconscious memories (or 'implicit memories' as they are now widely known) can influence behaviour without the subject experiencing conscious awareness of the influencing material. Furthermore, affective processes can be implicit with evidence from neuroscience (Bechara, Tranel, Damasio, Adolphs, Rockland, & Damasio, 1995; Bechara, Tranel, Damasio, & Damasio, 1996; Bruyer, 1991) supporting the idea that affective appraisal can precede cognition (Zajonc, 1980) or bypass consciousness all together as demonstrated by people diagnosed with Alzheimer's Disease in whom the emotional valence of a failure experience has

been shown to be processed despite unawareness of task performance (Mograbi, Brown, Salas & Morris, 2012).

Unsurprisingly, findings that support the idea of a dynamic unconscious have been embraced by the psychoanalytic community who have argued that the principal criticisms of psychoanalytic theory can no longer be substantiated (Westen, 1999).

#### *1.1.4.4. The development of a measure of transliminality*

Having reviewed the broad base of consciousness research from which the concept of transliminality has been derived, it is necessary to turn attention to the supposition that there is a flow of psychological material into, and out of, conscious awareness that can be measured using a self-report questionnaire – The Revised Transliminality Questionnaire (Lange, Thalbourne, Houran, & Storm, 2000).

The conception of a standardised measure began when Thalbourne (1991) hypothesised that transliminality would account for the majority of variance between attributes or processes that were associated with the flow of psychological material into and out of conscious awareness. This was tested in a factor analysis of six variables that he intuitively expected to be related to transliminal activity ('belief in, and experience of, the paranormal'; 'magical ideation'; 'creative personality'; 'mystical experience'; 'manic like experience'; and 'depressive experience'). A single factor underlying six variables was found accounting for over 75% of the variance (Thalbourne & Delin, 1994) and the first version of the Transliminality Scale was developed.

A series of correlates of transliminality were subsequently discovered, providing further evidence of construct validity. Strong correlates with high transliminality include 'thin boundaries' ( $r = .66$ ) (Thalbourne & Maltby, 2008), 'schizotypal unusual experiences' ( $r = .78$ ) (Thalbourne, Keogh, & Witt, 2005) and 'temporal lobe lability' ( $r = .70$ ) (Thalbourne & Maltby, 2008). Other constructs positively correlated with high transliminality include: 'openness to change' (Lange et al., 2000), 'abstractedness' (Lange et al., 2000), 'dream-recall', 'general religiosity',

'frequency of dream interpretation', 'absorption', 'sensory sensitivity', 'psychoticism and 'proneness to hallucination' (Thalbourne & Delin, 1994). Associations have also been found between low transliminality and 'tough mindedness', 'self-control' and 'rule consciousness' (Lange et al., 2000).

The shorter 17-item Revised Transliminality Scale (Lange et al., 2000) drew together probabilistic order of items that address 'magical ideation', 'mystical experience', 'absorption', 'hyperaesthesia', 'manic experience', 'dream interpretation', and 'fantasy proneness'. The inclusion of hyperaesthesia reflected the view that mental phenomena share a common underlying dimension with selected sensory experiences (for example being overwhelmed by smells, bright lights, sights, and sounds).

In the context of this literature review, it is not possible to provide a detailed appraisal of the validity of the constructs that form the basis of transliminality, nor the validity and reliability of the corresponding measures of these constructs. There are obvious limitations to quantitative approaches that are attempting to capture meaningful patterns of non-observable phenomena through survey methods and correlational analyses (as is the case for the data described). Most importantly, while causality can be inferred through moderation and mediation analyses, the high degree of abstractedness of the constructs in question means that in most cases, relationships cannot be assumed to be representative of tangible or real entities (Messick, 1995).

Despite these limitations, the evidence is sufficiently compelling to suggest that transliminality, may be some approximation of what at a brain level can be described as a specific type of neural interconnectedness or ungatedness (Thalbourne, Houran, Alias, & Brugger, 2001).

The development of the transliminality construct and a robust corresponding psychometric test, The Revised Transliminality Scale (Lange, Thalbourne, Houran & Storm, 2000), provides researchers with the opportunity to empirically examine the influence of unconscious processes in relation to other observable phenomena. In this thesis, the relationship between transliminality and constructs



related to interpersonal difficulties are explored in an attempt to integrate unconscious processes and existing psychological models that currently are being used to inform clinical practice.

#### *1.1.4.5. Qualitative studies of transliminality*

In addition the quantitative investigations undertaken by Thalbourne and others, there is a body of qualitative research detailing the personal experiences of transliminal states that provides some indication in relation to their etiology and function. It is important to note that the participants in these studies are describing what might typically fall into the category of psychotic, mystical or spiritual experiences. In one example of this kind of investigation by Sharon Warwick (2007) several key themes emerged. The experience of a 'psychic surge' or 'psychic opening' was described, most commonly occurring during childhood in the first instance. These initial experiences often did not seem to be related to trauma; however later experiences of similar phenomena were more likely to occur at time of spiritual crisis or heightened anxiety and related to the intensity of the surge or opening. In adulthood, an aspect of these experiences seemed to be seeking or attempting to discover, often without a clear grasp of what was sought. Indeed another theme was that such experiences were sometimes a useful tool for personal development and served a self-healing function. At other times, these experiences were frightening, disorientating and highly distressing.

Although these accounts can be seen as reflective of experiences associated with extremely high levels of transliminality, which is not a feature typically associated with qualitative descriptions of the experience of IPD, they do provide some useful clues about the mechanisms involved and the function of these states. Attempts to explain these experiences have been offered using a range of psychological theories (Clark, 2010). These include Kelly's (1955, 1977) personal construct theory whereby transliminal states facilitate a necessary loosening of constructs that allows new more useful representations of the world to be formed in response to new information. There are also theories that highlight the transformative value of this type of experience. A view of the functionality of entering alternative states espoused by Laing (1967) is one example of this kind

of theory. From his perspective, the ego is a tool that is useful for living in the 'real' world but when the ego disintegrates exposure to other worlds becomes possible. Laing placed the ability to experience worlds that transcend consensus reality as evidence of existing on a higher plane. Psychotic experiences were therefore seen as presenting possibilities for positive transformation and personal growth. A key difference between Laing and Kelly, was that the former saw the breakdown of constructs as an end point that we should aspire to reach whereas Kelly saw this as a key component of an adaptive process allowing new schemas to develop.

Jung's (1956) belief that distinguishing the self from the collective unconscious (an innate set of archetypes that give shaped form to conscious experiences common to all humans) to achieve individuation can also be seen as a theory that views entering alternative states as a potentially positive transformational experience. Accessing the collective unconscious through dreams, active imagination or free association is the only way that a distinction between the personal and the archetypal can be achieved. The mystical quality of the collective unconscious described by Jung bears close resemblance to Kelly's description of unboundaried states and he was keen to highlight the potential for psychosis when eliciting experiences of this nature.

In summary, Jung, Laing and Kelly have put forward theories that share the view that unboundaried states can be adaptive and functional. In relation to this thesis, these perspectives were seen as useful and potentially offering clues to analogous adaptive and dysfunctional mechanisms associated with IPD.

#### 1.1.5. Interpersonal difficulties literature review

Before expanding on the central proposition examined in this thesis, that transliminality is related to interpersonal difficulties, it is necessary to review the origins of the latter construct and provide justification for the use of a measure of interpersonal difficulties as opposed to the diagnostic category of personality disorder.

#### *1.1.5.1. Personality disorders*

The current research program examined the relationship between transliminality and contemporary theories of IPD, which are considered to be one of the defining features of diagnoses that fall within the personality disorder diagnostic category (American Psychological Association (APA), 2012). Within this diagnostic category the ten distinct subtypes of personality disorder are paranoid personality disorder, schizoid personality disorder, schizotypal personality disorder, antisocial personality disorder, borderline personality disorder, histrionic personality, narcissistic personality disorder, avoidant personality disorder, dependent personality disorder and obsessive-compulsive personality disorder. The The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) definition describes two common pathological threads consisting of 'impairments in personality (self and interpersonal) functioning' and 'the presence of pathological personality traits.' (APA, 2012, p. 1).

Personality disorder as a diagnostic category has faced heavy criticism on scientific and ethical grounds. From an empirical standpoint, one criticism is that there is little consensus as to what constitutes personality in the personality psychology literature, beyond the agreement that personality research is concerned with stable traits or dispositions (Sampson, McCubbin & Tyrer, 2006). A pathological personality is therefore a set of stable traits or dispositions that causes mental illness. This definition is problematic for several reasons. Firstly, a distinction between personality disorders and other functional mental disorders could be viewed as arbitrary as all mental disorders are associated with pervasive traits or dispositions - phobias, depression and anxiety disorders all meet this criterion on some level. The additional criterion of 'impairments in personality (self and interpersonal) functioning' does increase the specificity of the diagnosis somewhat. Impairment to 'self and interpersonal' aspects of functioning are described as problems of 'identity or self-direction' (self) and of 'empathy or intimacy' (interpersonal). Various more specific traits coming under these headings form the basis for the criteria for the different sub-types of personality disorder. Nonetheless, the absence of a consensus model of 'normal' or 'healthy' personality arguably makes it impossible to empirically identify pathological and non-pathological traits (Rapley, 2011). Accordingly, personality

disorders from this perspective can be viewed as little more than social constructions based on discourses on 'normal' formations of identity and ways of relating to others.

In support of the personality disorder diagnostic category, there is a significant body of evidence supporting the construct validity of the five-factor model (FFM) of personality (Costa & McRae, 1992) upon which the DSM sub-types are based. Additionally, FFM profiles generated for personality disorder sub-types have shown general congruence with hypothesised FFM translations of the DSM-IV-TR personality disorders (Samuel & Widiger, 2008). In short, while there is a lack of consensus as to what constitutes personality more generally, the FMM has been accepted as a working model from which to base diagnostic categories.

Validity aside, personality disorder is not a benign construct. Indeed a diagnosis of this type has been shown to be both stigmatising at a level beyond that of other mental health diagnoses and has negative implications regarding access to treatment (Aviram, Brodsky & Stanley, 2006; Nehls, 1998). There is a tendency for this diagnosis to lead to poor provision in terms of access to psychological therapies and more general marginalisation within health care systems (Zanarini, Frankenburg & Hennen, 2003). In response to these findings, the provision of specialist services for those with a diagnosis of personality disorder has expanded significantly over the last decade and largely ameliorated the problem of accessing appropriate services in comparison to other diagnoses (NICE, 2009b). Despite this, stigma at an individual clinician level is more difficult to challenge and individuals with this diagnosis continue to be subject to pejorative treatment (Bodner, Cohen-Fridel, & Iancu, 2011). Typically, clinicians emotionally distance themselves from those with this label (Black et al., 2011). This distancing would be problematic for any client experiencing mental distress but given the purported increased prevalence of sensitivity to rejection and abandonment in this population (Staebler, Helbing, Rosenbach, & Renneberg, 2010), the results can include withdrawal from treatment and self-harming (Aviram et al., 2006). Moreover, such occurrences potentially feed back into stigmatising personality disorder discourses.

With the critique of personality disorder as a stigmatising diagnosis in mind, this research will focus primarily on interpersonal difficulties in an attempt to increase the specificity of what is being measured in relation to a more empirically and ethically defensible construct.

#### *1.1.5.2. Defining interpersonal difficulties*

Interpersonal difficulties have been defined as recurrent difficulties in relating to others, and are a common reason why people seek psychotherapy (Horowitz, Rosenberg, & Bartholomew, 1993). Literature attempting to quantify interpersonal traits or characteristics is inextricably linked to the study of personality. Indeed, contemporary attempts to quantify interpersonal difficulties are derivatives of personality frameworks which are predominantly made up of sets of interpersonal dimensions. Leary's circle (otherwise known as Leary's circumplex) (Leary, 1957), which organizes 'personality' along two main axes: power (dominance and submission) and love (love and hate), is an example of an influential 'personality theory' which is concerned with the measurement of what are clearly variants of ways of relating to others. Additionally, central to Leary's circle (and the majority of mainstream personality theories) is the notion that a trait can be mapped as a vector within a framework that denotes healthy or unhealthy expression of that trait. As such, the study of personality focusing on interpersonal dimensions has provided the language and empirical justification for a 'personality' disorder diagnostic category.

Following on from the development of Leary's circle and other early attempts to capture personality trait variance the 'big five' personality traits were developed as a means of providing a taxonomy for personality research (Goldberg, 1980; Goldberg, 1982; Peabody & Goldberg, 1989). The language people used to describe themselves was used to develop five dimensions. At the time of these developments, a proliferation of personality theories composed of various dimensions that lacked congruence between studies was seen as problematic for the advancement of personality research. The development of the big five can therefore be seen as a pragmatic move driven by a lack of cohesion rather than empirically supported unifying theory. Interestingly, Goldberg was not the first to adopt a lexical approach to developing personality dimensions. Twenty years

earlier Tupes and Christal (1961) undertook a similar piece of research and discovered a remarkably similar five factor structure but were not duly credited until the resurgence of personality research following Goldberg's work.

A variety of psychological tests have since been designed to measure the different five factors or combinations of them. The interpersonal circumplex, a model for organising and assessing interpersonal behaviour, traits, and motives (Wiggins, 2003; Wiggins & Broughton, 1991) structurally derived from Leary's circle and incorporating the big five dimensions, has emerged as template for tests of this kind. Circumplex models are in essence an attempt to solve the problem of Big five descriptors not fitting perfectly into simple structure models as trait names represent blends of factors. For example, the 'Extroversion' factor is a bipolar trait consisting of both introversion and extroversion factors.

Consequently, factor locations are unstable and make it difficult to ascribe hard and fast interpretive labels (Hofstee, de Raad, & Goldberg, 1992). Circumplex models provide a degree of semantic consistency and cohesiveness when identifying clusters of traits. Examples of circumplex based measures include: the Interpersonal Adjective Scales (IAS; Wiggins, 1995) which measures interpersonal traits associated with each octant of the interpersonal circumplex; The Inventory of Interpersonal Problems (IIP; Horowitz, Alden, Wiggins, & Pincus, 2000) - a measure of difficulties related to the various octants of the interpersonal circumplex; the Inventory of Interpersonal Strengths (IIS; Hatcher & Rogers, 2009) which assesses strengths in relation to each octant; and The Circumplex Scales of Interpersonal Values (CSIV; Locke, 2000) that uses value judgments of interpersonal experiences and maps how these associate with circumplex octants.

As previously discussed, the FFM underpins the categorisation of personality disorders so interpersonal circumplex measures based on the FFM can be used as tools for identifying or differentiating personality disorders (Locke, 2006). Consequently, quantitatively exploring IPD using an existing standardised measure would make it possible to label participants as being likely to meet the diagnostic criteria for the various personality disorders. While this research does use an interpersonal circumplex model measure, a decision was made not to

categorise participants according to personality disorder diagnoses for the following reasons: 1. The researcher did not want to contribute to existing stigmatising discourses associated with personality disorder by adding to an evidence-base that propagates the continuing use of this terminology; 2. There is a significant body of evidence indicating diagnosis of personality disorder is highly inconsistent in clinical practice and in research (Tyrer et al., 2007) so research based on these categorisations is of limited value; 3. Exploring the relationship between transliminality and interpersonal difficulties using continuous data does not require the use of diagnostic categories and the analysis of relationships between the variables was not likely to be meaningfully enhanced by doing so; 4. The primary goal of this research was to establish whether unconscious processes add something meaningful to existing theories of psychopathology. The personality disorder literature provided a useful theoretical context for this investigation but the findings were not intended to be used as a means validating this diagnosis.

Having contemplated how transliminality and interpersonal difficulties are constructed and measured, the next section provides a review of psychological models of interpersonal difficulties. In doing so, attention is focused on aspects of these models that make reference to the role of the unconscious in the etiology and manifestations of interpersonal difficulties. Finally, consideration is given to the potential for transliminality to be a supplementary construct in these models offering further insights regarding the role of unconscious processes.

#### 1.1.6. Psychodynamic theories of interpersonal difficulties literature review

The principles of developmental psychopathology within psychodynamic theories are intractably relational so from this perspective it is possible to frame all manifestations of psychological distress as interpersonal difficulties of some kind: Early experiences of relationships form the archetypes for future relationships and psychopathology occurs when dysfunctional relational archetypes acquired during childhood are transferred onto other relationships (Fairbairn, 1952; Freud, 1919). Variation in the formation of dysfunctional relational archetypes determines the nature of pathology and presentation. Consequently, for the

purpose of this review, psychodynamic theories of interpersonal difficulties that fall within the personality disorder rubric are discussed in order to maintain a manageable focus and make it possible to draw links with literature concerned with interpersonal difficulties as they are more widely conceived.

Proponents of psychodynamic approaches were largely responsible for the first appearance of the axis II personality disorder category appearing in the DSM-III (1980). The first personality disorder DSM committee chair was the Psychoanalyst John Gunderson, at a time when there was growing interest amongst psychoanalytic researchers in the area of borderline states (Gunderson & Kolb, 1978; Kernberg, 1975; Knight, 1953; Stern, 1938).

Amongst the most influential theories was Kernberg's (1975) Borderline Personality Organisation which constitutes a broader construct than BPD accounting for many of the Axis II personality disorder subtypes. Kernberg proposed a continuum consisting of 'normal' or 'healthy', neurotic, borderline and psychotic personality organisations. Personality disorders occupy the borderline point on this continuum, reflecting a distortion of reality perception, immature defenses that are used to regulate affect and an impaired capacity to form integrated representations. This meta-model of personality disorder has been supported by recent evidence showing a high co-morbidity between DSM defined personality disorders with consistent clustering along a Kernbergian continuum of personality pathology (Skodol et al., 2002; Tyrer, 1996).

If Kernberg's continuum theory is briefly considered in the context of transliminality research demonstrating the relationship between psychoticism or related experiences to high transliminality (Thalbourne & Maltby, 2008), an interesting hypothesis emerges: If the characteristic loss of contact with reality associated with psychosis is related to high transliminality, it follows that the borderline characteristic distortion of reality perception is a consequence of, or related to, high transliminality but to a lesser extent. The resultant unconscious uprushing of emotion and unintegrated representations leads to the use of maladaptive defence mechanisms as a means of avoiding psychic pain.



Staying within the psychodynamic framework, it is possible to argue that this hypothesis is based on an overly simplistic model of personality disorder. One possibility is that transliminality is also related to the process by which defensive strategies are employed. The concept of thick-skinned and thin-skinned narcissism (Rosenfeld, 1987) postulates that those who present with BPD, move between these two states. Thick-skinned narcissism is characterised by a rejection of need or dependency and a more general preservation of an idealised version of the self. In such states, people are unable to engage with psychotherapy on account of the defensive rejection of all external objects. Conversely, thin-skinned narcissism constitutes intense vulnerability to rejection, shame, persistent self-criticism and damning comparison to others. Using this framework, one could postulate that thick-skinned states are a form of emotionally 'cut-off' coping commonly associated with personality disorders (e.g. Golyunkina & Ryle, 1999) and reflect low transliminality as the individual has gated the unconscious boundary lest the material emanating from it is too painful. In a thin-skinned state the opposite is true. This state is characterised by high transliminality allowing unhelpful relational representations to influence thoughts, emotions and behaviour. This is supported by evidence, that emotional reactivity and emotional cut-off coping strategies account for over 60% of the variance in interpersonal problems (Wei, Vogel, Ku & Zakalik, 2005).

While psychodynamic theories provide some interesting potential avenues for exploration, psychodynamic therapeutic practices have become less and less influential in the face of newer evidence based approaches to the treatment of interpersonal difficulties.

## **1.2. Exploring the relationship between mentalization and transliminality**

Over the past two decades a literature has emerged detailing new approaches to treatment for people experiencing IPD. Mentalization-Based Therapy (Bateman & Fonagy, 2000) along with Dialectical Behaviour Therapy (Linehan, 1993) are emerging as therapies of choice within the NHS (NICE, 2009). This project intends to examine some of the theoretical underpinnings of MBT in relation to transliminality as the researcher believes that transliminal processes may provide

the basis for developing an understanding of IPD as a two-way subliminal-supraliminal process, building on the existing MBT model. A brief overview of the basis for this supposition is provided in the following paragraphs.

#### 1.2.1. Mentalization, attachment hyperactivity and IPD

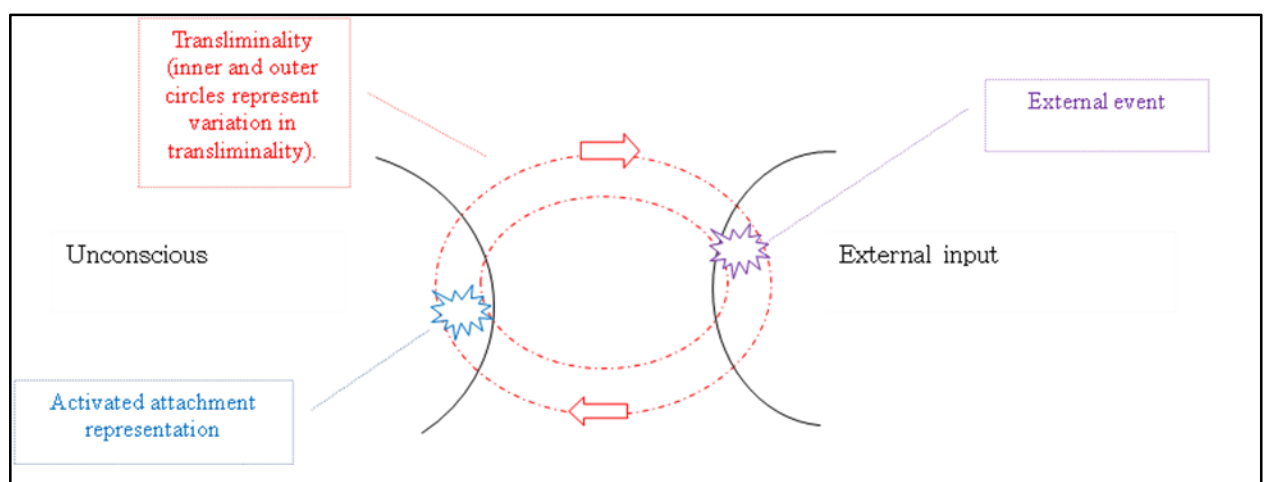
Mentalization (Fonagy & Bateman, 2000) is the ability to interpret the mental states of others evident in observed behaviour and to observe the mental state of oneself. Mentalization can be understood as a type of imaginative mental activity, that is integral to our perception and interpretation of human behaviour particularly our understanding of intentional mental states (for example motivations, emotions and beliefs), which develops in the context of a secure attachment relationship (Bowlby, 1969, 1973).

According to attachment theory, an attachment behavioural system (Bowlby, 1969), (a form of relational schema), serves an important function in relation to obtaining or maintaining proximity to an attachment Figure. Fear of danger or a sense of vulnerability activates the attachment system. Anxiety, within the bounds of attachment theory, is understood as the expectation or fear that proximity to an attachment Figure will be lost. If the anticipated separation does occur, this is a highly charged, distressing emotional experience for the infant. Fonagy and Bateman (2000) have proposed that those with IPD have hyperactive attachment systems (attachment systems are triggered too readily as a consequence of an adaptive response to the threat of abandonment or rejection) as a result of biological predisposition and early experiences (Fonagy & Bateman, 2006; Gunderson, 2001). Attachment hyperactivity has also been consistently shown to predict IPD (Levy, Beeney & Temes, 2011; Scott, Levy & Pincus, 2009). Those who are securely-attached have commonly had a mentalizing key attachment Figure and this leads to more robust capacities to represent the mental states of other people and themselves (Fonagy, Steele, Moran, Steele, & Higgitt, 1991). Early childhood exposure to a mentalizing primary care-giver can also help the individual cope with psychosocial adversity (Fonagy & Bateman, 2006). When difficulties in mentalizing are present, there is the belief that perception of others' motives and feelings directly correspond with

reality. At the same time, there is an inability to entertain alternative interpretations of the behavior of others. In other words, mentalization is a mediating process that allows perceptual information and information emanating from attachment representations to be integrated and subjected to conscious appraisal. In line with this, psychological interventions that have been shown to develop mentalization ability coincide with a reduction in interpersonal difficulties (Fonagy & Bateman, 2004).

### 1.2.2. Mentalization, transliminality and IPD

As previously described, transliminality can be viewed as a field of awareness encompassing unconscious representations and external stimuli that varies between individuals (see Figure 1). Consequently, it is proposed that the influence of unconscious attachment representations is a product of the degree of activation of representations *and* susceptibility to, and awareness of this unconscious material (transliminality). Put simply, greater or deeper transliminality increases the influence of attachment representations as they are more accessible or yield greater influence. As the construct of transliminality also encompasses sensitivity to external input, it also follows that the sensitivity to others' behaviour would also be a consequence of deeper levels of transliminality. Accordingly it seems plausible that IPD of greater severity would be related to higher levels of transliminality.



*Figure 1. A representation of how variation in transliminality could determine awareness of external events and unconscious representations.*

A broader hypothetical model of the interaction between key components of IPD from an MBT perspective will also be tested. This model (see Figure 1) proposes that transliminality and attachment hyperactivation (similarly known as attachment anxiety (Mikulincer & Florian, 1998) will independently predict severity of IPD. Given that attachment activation refers to the activation of a form of unconscious representation, it is possible that there will be an interaction between these two variables.

### **1.3. A hypothesised model of IPD**

Consideration has been given to the possible relationships between transliminality, IPD and its associated constructs drawing on psychodynamic and mentalization theory.

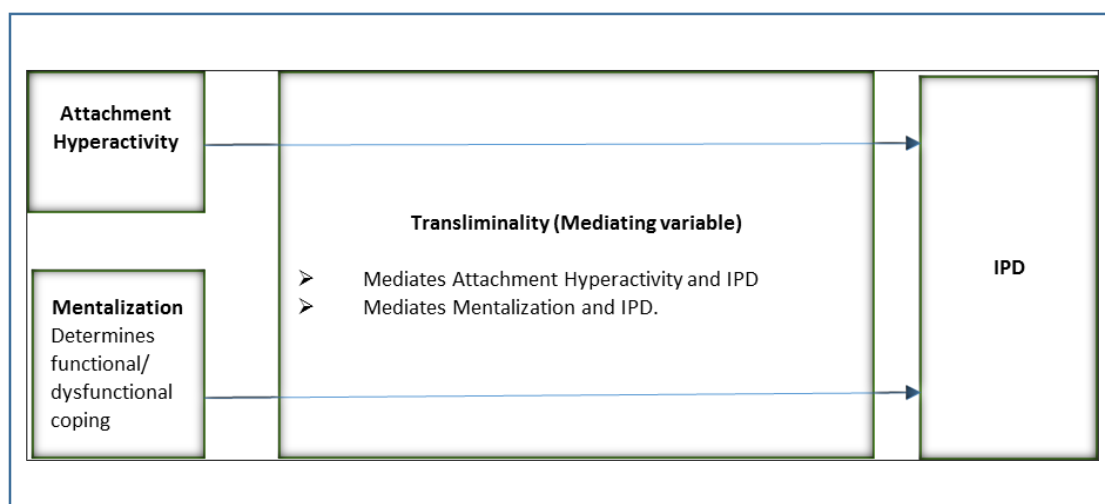
#### **1.3.1. Transliminality and the mentalization model**

Using the mentalization framework, this thesis tested a model that proposed that transliminality is a key psychological mechanism mediating the association between attachment hyperactivity and IPD, and mediating the association between mentalization and IPD (see Figure 2). The mediation of the former relationship arises from the degree of transliminality impacting the susceptibility to, and awareness of attachment representations as outlined in Figure 1. Transliminality determines awareness of, and susceptibility to hyperactive attachment representations and should therefore account for the relationship between these two variables.

The proposition that transliminality as a mediator of the relationship between mentalization and IPD was based on the view that transliminality functions as an active component of mentalization. This hypothesis was built on the concept of mentalization as an active process that allows information emerging from the unconscious and information from the external world (e.g. the behaviour of

others), to be consciously integrated and appraised. The process of MBT centres around 'accessing conscious or near conscious representations' and making interpretations that are just beyond the clients conscious awareness (Fonagy, Bateman & Luyten, 2012, p. 22). The objective here is to achieve a greater degree of representational integration and coherence. Therefore, it was proposed that transliminality is the mechanism that facilitates mentalization by determining the degree of awareness and the ability to appraise and act upon this material.

As those with a more developed mentalization ability are able to think flexibly about the behaviour of others and consider multiple explanations for what they have observed, it was expected that greater mentalizing ability would protect against the influence of activated attachment representations in line with the literature demonstrating the mentalization is a protective factor in relation to IPD.



*Figure 2. Proposed model of relationships between transliminality, attachment hyperactivity, mentalization and IPD.*

### 1.3.2. Transliminality and psychoanalytic theories of IPD

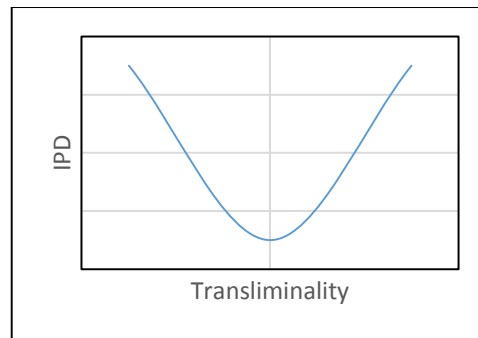
It was hypothesised that there would be a curvilinear relationship between IPD and transliminality reflecting the unconscious process associated with thick and thin-skinned defensive strategies (Rosenberg, 1975) analogous to reactive and cut-off coping styles described by Wei et al. (2005). The anticipated u-shaped function would demonstrate that high levels of interpersonal difficulties would be reflected in high and low levels of transliminality with those who reported low IPD expected to fall into a mid-range of transliminality. This was postulated as being reflective of the degree of gatedness associated with thick and thin-skinned states.

## **2. RESEARCH QUESTIONS AND HYPOTHESES**

### **2.1. Research question 1: Is transliminality related to IPD and what is the nature of this relationship?**

#### 2.1.1. Hypothesis 1: There will be a U-shaped correlation between IPD and transliminality

Acceptance of hypothesis 1 would indicate that there is a complex relationship between transliminality and IPD and support the idea that transliminality is associated with both thick and thin-skinned narcissistic ways of coping (alternatively described as reactive or cut-off coping) (see Figure 3).



*Figure 3. Hypothesised relationships between transliminality and IPD tested by hypothesis 1.*

## **2.2. Research question 2: Does transliminality mediate the effects of mentalization and attachment hyperactivation on IPD?**

### 2.2.1. Hypothesis 2: Attachment hyperactivity will positively correlate with IPD.

This hypothesis tested the well-established relationship between attachment hyperactivity and IPD.

### 2.2.2. Hypothesis 3: Mentalization will negatively correlate with IPD.

This hypothesis tested the well-established relationship between mentalization and IPD.

### 2.2.3. Hypothesis 4: Transliminality will positively correlate with mentalization

### 2.2.4. Hypothesis 5: Transliminality will positively correlate with attachment hyperactivity

Hypotheses 4 and 5 needed to be accepted in order to conduct the mediation analysis.

#### 2.2.5. Hypothesis 6: Transliminality will mediate the association between mentalization and IPD.

The model being tested proposed that mentalization impacts on transliminality which in turn determines IPD. It follows that if transliminality is a primary active component of this process then transliminality will account for the relationship between mentalization and IPD.

#### 2.2.6. Hypothesis 7: Transliminality will mediate the positive correlation between attachment hyperactivity and IPD.

In a similar vein to hypothesis 6, the model proposed that transliminality is a primary component in the process of attachment hyperactivity leading to IPD. Transliminality should therefore mediate this relationship.

### **3. METHOD**

#### **3.1. Rationale for design**

A quantitative methodology was considered to be the most appropriate approach given the research questions and hypotheses. In the introduction section, the lack of empirical measurement of unconscious processes in relation to theories of psychopathology was highlighted. Testing the validity of previous theoretical inferences about the role of unconscious processes using a standardised measure was deemed to be an appropriate way of exploring this gap in the literature and opening up the possibility of replicable and generalisable future research. With all studies using standardised quantitative self-report measures, the generalisability of the findings rests largely on construct validity and robustness of the measures being used. Transliminality and its corresponding scale were not considered to be without faults (issues relating to the validity of the Revised Transliminality Scale are reviewed in the measures section below), however, methodological alternatives to investigating the proposed research questions were considered to be problematic. A qualitative design seeking to



explore unconscious phenomena in relation to other constructs would pose significant problems such as difficulty in constructing accessible interview questions that examine the interaction between abstract psychological constructs. One alternative that was considered was to interview Psychologists and Psychotherapists about case material utilising their existing understanding of the ideas being explored. However, the reliance on the validity of interpretations of others intra-psychic experiences inherent in such an approach was viewed as a significant limitation and this approach was not pursued. Additionally, there is already a proliferation of case study material in psychodynamic literature providing descriptions of therapeutic conversations and interpretations of the unconscious processes this material purportedly reflects. The training of a therapist undoubtedly informs these interpretations so they are likely to be a repetition of existing ideas about the influence of unconscious processes. By using standardised measures, albeit self-report measures that carry some limitations, and a cross-sectional descriptive quantitative design it was possible to overcome some of these difficulties.

The decision to examine data at one time point was a result of the exploratory objectives of this research. Identifying the prevalence of relationships between transliminality and IPD-associated constructs was viewed as a necessary step that once confirmed could lead to further research investigating the dynamic nature of these variables and the interactions that may exist between them: Exploring how these relationships develop over time in the presence of other potentially influencing factors such as engaging with therapy or experiencing adverse life events are viable avenues for future research once evidence of associations between the variables in question have been established.

### **3.2. Epistemology**

The research question posed is an examination of a pre-existing quantitatively developed psychometric construct in relation to other quantified data. Using quantitative approaches is informed by positivist philosophy and realist epistemology. As such, the research used these methods to maximise objectivity and minimise the influence of the researcher. The epistemological and historical

context of the research concerned with investigating consciousness has been reviewed in more detail in section 1.1. 4.1 of the introduction.

### **3.3. Participants and Criteria for Selection**

At the outset, the intention was to recruit from a clinical population. However, difficulties in recruiting a sufficient number of participants led to the recruitment of an additional non-clinical sample, effectively as a back-up plan in case the clinical sample was too small to conduct meaningful statistical analyses. The criteria for selection for the clinical and non-clinical samples are described below.

#### **3.3.1. Clinical sample**

The inclusion criteria were as follows: Adults aged 18 years or over who had been offered an assessment for an outpatient psychological intervention at an NHS psychological therapies service. Participants were required to be able to read and write in English. They did not need to have a Personality Disorder diagnosis or a referral detailing interpersonal difficulties to be included.

Participants were recruited from two NHS psychological therapies services. One service in a suburban area in the South East of England and the second service was in an Inner London borough. A total of 16 participants were recruited for this sample.

Recruitment through NHS psychological therapies services was undertaken to increase the likelihood of achieving a sample that contained participants with a range of levels of interpersonal difficulties. Obtaining such a range was deemed necessary in order to test hypothesis 1: 'There will be a U-shaped correlation between IPD and transliminality'. Testing this hypothesis necessitated a data set that includes a normal or bell-curved distribution of IPD scores. A sample from a non-clinical population or a specialist personality disorder service would have been more likely to have produced a sample skewed at the low and high ends of interpersonal difficulties respectively. The NHS psychological therapies services in question operated within tier two of the NHS stepped care system. These tier two services offer assessment and treatment for a range of common

psychological difficulties – typically the kinds of difficulties associated with diagnoses of anxiety disorder and depression. The prevalence of interpersonal difficulties in clients being treated for emotional difficulties like these is high (McEvoy, Burgess, Page, Nathan & Fursland, 2013) relative to the normal population. It was therefore expected that such a sample would provide data on those experiencing no or low levels of IPD through to those experiencing significant IPD.

Consideration was given to the inclusion of clients who had previously received therapy and it was judged to be of limited significance in the light of the hypotheses and model being examined. As this research program was interested in the relationships between transliminality and IPD constructs as opposed to agents of change or predictors of patterns in these relationships, gathering data on previous experiences of therapy and other historical information on the participants was deemed unnecessary. For these reasons, and in attempt to recruit a number of participants to achieve a sufficiently powered analysis, the inclusion criteria was designed to be as inclusive as possible. The stipulation that all participants were at the stage of being offered an assessment but had not attended an appointment at the time when they completed the questionnaires, was intended to mitigate the possible effects on test scores of being actively involved in therapy or at various stages of the process. Similarly, this was not considered to be a crucial variable to control for but it provided a broad degree of consistency in terms of the characteristics of selected participants.

### 3.3.2. Non-clinical sample

As with the clinical sample, adults aged 18 years or over who were able to read and write in English were recruited. Opportunity sampling methods were used to recruit participants for this sample. The primary factor determining this approach was the limited time and resources available. The researcher invited friends and acquaintances via email and through an advertisement posted on a social media website. Potential participants were provided with a link to an online version of the questionnaires. Consideration was given to the likelihood that this sample would not be representative of the UK population and the findings derived from it

being limited in terms of generalisability. It was anticipated that the sample would contain an over-representation of participants under the age of 35 with a graduate or post-graduate level of education given that it was recruited from the author's social network. As data was gathered on these potentially confounding variables, the analysis was able to screen and control for the influence of age and level of education. Although it would have been advantageous to use probability sampling methods to achieve a sample representative of the non-clinical population in a particular area, the intention of this thesis was to provide an exploratory analysis of the relationship between transliminality and IPD-related constructs. As such, this sample was still considered to provide a sufficient data pool capable for answering the research questions. A total of 60 participants were recruited for this sample.

### **3.4. Sample size and power calculations**

#### **3.4.1. Power calculations**

Power was used to calculate the necessary sample size for the hierarchical regression model that included a possible seven predictor variables (attachment hyperactivity, mentalization, transliminality, level of education, age, gender, use of medication) using Cohen's (1988) guidelines. Cohen advocates achieving power of .8 equates to an 80% probability of identifying an effect should one truly exist. For the analysis to be powered at this level, different sample sizes are required depending on the size of the effects predicted. As the model being tested contained two known reliable predictors of IPD (mentalization and attachment hyperactivity), it was anticipated that the  $R^2$  for this model would be greater than .26 and therefore above the threshold for the classification of large effect sizes. A regression analysis containing seven predictors to be power at the .8 level detecting a large effect requires a sample of  $N = 50$  (Field, 2013, p. 314).

### **3.5. Measures**

#### **3.5.1. Transliminality - The Revised Transliminality Scale (RTS)**

The RTS is a 17-item standardised self-report questionnaire that requires respondents to select 'true' or 'false' in relation to a series of statements. According to its creators, the RTS is concerned with examining susceptibility to, and awareness of, large volumes of imagery, ideation and affect - these phenomena being generated by subliminal, supraliminal and/or external input (Lange et al., 2000). It defines a probabilistic hierarchy of questionnaire items that relate to a series of constituent constructs, the first of which were initially identified by Thalbourne and Delin (1994) when they administered a series of tests to samples of people with a diagnosis of manic-depression or schizophrenia and university students with no mental health diagnosis. Test score comparisons revealed belief in the paranormal correlated with creative personality, mystical experience, magical ideation, and history of manic-like and depressive experience. These findings led to the first iteration of a standardised transliminality scale which included the variables: magical ideation, mystical experience, absorption, hyperaesthesia, manic experience, dream interpretation and fantasy proneness.

The revised scale was developed in response to the problems associated with using weighted counts of 'positive' responses. Such measures are not conjointly additive (Wright, 1999) and therefore produce scores that cannot be accurately represented on a continuum. In an attempt to overcome this limitation, Lange et al. (2000) applied the principles of Rasch scaling (Ludlow & Haley, 1995; Rasch, 1960) to the original transliminality measure and identified those items that distinguish higher levels of transliminality from lower ones, thus allowing a mapping of each item's location across the latent dimension. By identifying the key items and quantifying the relationships between them, it was possible to develop an interval (as opposed to an ordinal) scale of measurement. Their revisions also include corrections for age and gender biases evident in the original scale. In reducing the number of items from 29 to 17 and transforming it to an interval measure, the internal consistency of the RTS was rated at 0.82 in

comparison to the original scale rating of 0.88, indicating that an acceptable degree of consistency had been maintained. In short, these developments indicate that the RTS is capable of providing interval data on the latent variable and error estimates that are more accurate than those obtained within the classic test theory framework (Hambleton, Swaminathan & Rogers, 1991, p. 4).

Nonetheless, limitations persist despite these revisions. The developers of the RTS claim that the constituent variables 'share a common core', however, its external validity still relies upon the validity and reliability of the constructs from which transliminality was derived. If one considers what is professedly being measured (susceptibility to, and awareness of, large volumes of imagery, ideation and affect—these phenomena being generated by subliminal, supraliminal and/or external input) there is a clear empirical and theoretical gap between core transliminal processes and its array of disparate correlates. The RTS can therefore be seen as a pragmatic scale that draws together a set of constructs sharing a very broad commonality: These phenomena are believed to be associated with different aspects of consciousness based largely on popular discourses and logical inferences. The premises of one RTS item, that dreams originate in the unconscious and those who ascribe value to these experiences are more susceptible to unconscious psychological material, provides a good example of this kind of inferential thinking. In the main, dreams are believed to be out of conscious control based on a consensus of shared subjective experience: People generally feel that they do not choose the content of their dreams. In addition there are a range of theories postulating what the function of dreams might be with many of them drawing on neurological correlates of dream states, yet it is not possible to say with any certainty what the purpose of dreaming is (Mancia, 1999). Therefore, ascribing meaning to the content of dreams as indicative of openness to unconscious psychological material is something of a leap empirically. Nevertheless, it does seem to be a logical hypothesis, albeit based on our limited understanding of both consciousness and dreams. The correlates of transliminality that contribute to the construct validity of the RTS can therefore be seen as a collection of hypotheses about the nature of the unconscious that have been shown to be related to each other, but not directly to transliminal processes. In this sense, the RTS is a rudimentary tool that

draws together series of semantically connected constructs. Nonetheless, it is a scale that has undergone rigorous validity and reliability examinations and is capable of providing internally consistent interval data. It is also the only quantitative self-report measure of its type and provides a useful starting point for investigating transliminal processes in relation to other psychological phenomena.

### 3.5.2. Interpersonal difficulties - Inventory of Interpersonal Problems 32 (IIP-32)

The IIP-32 (Barkham, Hardy & Startup, 1996) was developed as a means of measuring the difficulties experienced by people in interpersonal relationships. This measure was based on the original 127 item version of the IIP (Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988) and was developed to enhance its clinical utility. The psychometric properties of the shorter version were found to be similar to the original scale (Barkham, Hardy & Startup, 1994), as such it provides a robust and brief measure of interpersonal difficulties.

Within the IIP-32 framework, interpersonal difficulties are defined as experiences in relationships that are 'too much' or 'too hard'. Respondents are required to respond to statements such as 'It is hard for me to say 'no' to other people' on a 5 point likert scale that includes the following five options: 'Not at all', 'A little bit', 'Moderately', 'Quite a bit', or 'Extremely'.

Factor analysis of the original IIP (and subsequently replicated in the IIP-32) revealed an eight factor structure including: Hard to be assertive, hard to be sociable, hard to be supportive, too caring, too dependent, too aggressive, hard to be involved and too open (Barkham et al., 1994). These eight factors were found to form four bipolar factors of problems relating to competition (hard to be assertive vs. too aggressive), socializing (hard to be sociable vs. too open), nurturance (hard to be supportive vs. too caring), and independence (hard to be involved vs. too dependent). The IIP-32 therefore provides a total score for interpersonal problems alongside a map of difficulties on 4 bipolar subscales.

The IIP questionnaire items were initially developed using data on self-reported interpersonal difficulties from psychotherapy assessment interviews. The problematic behaviours emerging from this analysis were then subject to scaling methods resulting in a series of underlying dimensions and themes (Horowitz et al., 1988). These themes and dimensions formed the basis for the first iteration of the IIP which was validated and refined using a student population. It may be seen that this measure was developed in a bottom-up fashion and did not place interpersonal difficulties within the existing personality literature framework e.g. using 'the big five' personality traits. Within a clinical context, interpersonal difficulties are often described by referencing personality disorder diagnostic categories and their associated symptoms. In the introduction section the validity of personality disorder diagnostic category and research on 'the big five' were reviewed and found to be underpinned by pragmatically constructed and empirically questionable theory. In the context of these shortcomings and in addition to the ethical criticism of personality disorders previously discussed, the IIP-32 is a more defensible measure in that it is derived from clinical material and primarily seeks to record changes in difficulties over time. Interestingly, approaches have been developed to use IIP scores and convert them into conceptual frameworks based on Leary's (1957) interpersonal circle (Soldz, Budman, Demby & Merry, 1995) thus allowing the IIP to inform diagnostic decision making, although this has been criticised on the basis that it reduces data to few factors resulting in complex composites (Barkham et al., 1996).

### 3.5.3. Attachment hyperactivity: Experiences in Close Relationships Questionnaire (ECR-R)

The ECR-R assesses attachment anxiety and avoidance with an 18-item subscale for each dimension. Respondents are required to respond to statements such as 'Sometimes romantic partners change their feelings about me for no apparent reason' on a 7 point likert scale (1 = strongly disagree/ 7 = strongly agree).

The original ECR (Brennan, Clark, & Shaver, 1998) was developed in response to the psychometric limitations of early adult attachment instruments. These



limitations included using single item responses to make attachment style classifications that were not suitable for mapping attachment. Attachment does not fit a categorical map leading to problems with conceptual analysis, statistical power and measurement precision (Brennan, Clark, & Shaver, 1998). Consequently, the ECR was developed as means of accurately capturing the more complex and multi-dimensional aspects of attachment behaviour and was constructed following an evaluation of a range of dimensional model-based attachment scales (Fraley, Waller & Brennan, 2000). As the ECR was found to have the best psychometric properties of the evaluated scales, Fraley et al. (2000) utilised Item Response Theory analysis (Hambleton & Swaminathan, 1985; Lord, 1980) to enhance the properties of the ECR, culminating in the ECR-R. The ECR-R uses the 18 items with the highest discrimination values for both attachment anxiety and attachment avoidance scales.

In attachment literature, the terms attachment anxiety and attachment hyperactivity are used interchangeably, hence the use of the Attachment Anxiety subscale of the ECR-R (Mikulincer & Florian, 1998). Attachment anxiety is characterised by unremitting vigilance and hypersensitivity to cues of rejection, which in turn lead those with high attachment anxiety to easily perceive threats in their environment and frequently experience social interactions as stressful (Shaver & Mikulincer, 2002). As previously discussed, attachment hyperactivity plays a key role in the mentalization model of interpersonal difficulties whereby mentalization is a mediating process that allows perceptual information and attachment representations to be integrated and subjected to conscious appraisal. According to this model, attachment hyperactivity coupled with limited mentalization manifest as interpersonal difficulties. From this point onwards, the term attachment hyperactivity will be used in reference to this dual-named construct.

Standardised self-report measures of attachment-related constructs have been subject to criticism. Of particular relevance is the difficulty such questionnaires encounter in examining attachment anxiety which is exacerbated by circumstances of attachment-related threat (Fraley & Shaver, 1998). As such, the ECR-R does not provide information on individual circumstances that allow for an

evaluation of responses in context. Using a current romantic relationship as a stimulus can be seen as providing some useful information on an individual's experience of being in close relationships and this has been shown to be consistent over time (Fraley, Waller & Brennan, 2000). Nonetheless, it is possible for a respondent who is highly anxious in attachment-related threat conditions to report relatively low levels of attachment hyperactivity if they are in a relationship with an individual who is highly responsive to their attachment needs.

Consequently, the Adult Attachment Interview (AAI, George, Kaplan & Main, 1985) is viewed as the gold standard of assessment of attachment related tendencies as it requires interviewees to reflect on personal experiences of attachment-related threats. Through standardised analysis of qualitative interview data, the AAI has been shown to consistently provide accurate and replicable accounts of attachment styles and strategies (van IJzendoorn, 1995).

Administering the AAI requires specialist training and the interview itself places considerable burden on interviewees. For the purpose of this study, conducting AAI's would not have been possible due to limited resources. More importantly, the means would not have justified the ends from an ethical point of view, particularly in the context of the exploratory nature of this research program. Although the ECR-R is not without flaws, ECR-R attachment anxiety is one of the few self-report scales that has been consistently associated with the attachment security domain of the AAI, albeit on a modest scale (see Roisman, Holland, Fortuna, Fraley, Clausell & Clarke, 2007 for a meta-analytic review of the AAI in relation to various self report measures).

#### 3.5.4. Mentalization - Reading the Mind in the Eyes (RME)

The Reading the Mind in the Eyes Task (RME; Baron-Cohen et al., 1997; Baron-Cohen et al., 2001) asks respondents to put themselves into the mind of another person using a series of photographic images of sets of eyes (see Figure 4 for an example item). Each set of eyes constitutes an item and is responded to with a judgment about their mental state with four options to choose from (see Figure 4 for an example questionnaire item). This self-report measure requires responses to 36 items. The RME used in this research program is the second iteration of

this measure, the original having undergone revisions to improve its psychometric properties primarily through increasing the number of items and the number of forced choice options from two to four. Additional developments include the use of foil words of the same valency as the correct response as opposed to the semantic opposite. This amendment was in response to more 'able' adults being able to use the foil words as a means of making educated guesses.



*Figure 4. Example item from Reading the Mind in The Eyes.*

The conceptual breadth of mentalization presents difficulties in selecting measures that comprehensively assess all aspects of this construct. At the time of writing there was no single assessment tool that assesses mentalization in respect to self and others, explicit and implicit ability, and cognitive and affective judgments (Choi-Kain & Gunderson, 2008). The RME explicitly assesses mentalization in relation to others and includes both cognitive and affective judgments and is therefore one of the most comprehensive mentalization measures. In addition to its apparent high level of construct validity, the measure has been designed to control for several potentially confounding variables. These include alternative explanations of facial perception, emotional insight, social understanding, IQ or executive function (Newbury-Helps, 2011). The RME has also been shown to have a high level of test-retest reliability over a one year period ( $r = .63$ ) (Fernández-Abascal, Cabello, Fernández-Berrocal & Baron-Cohen, 2013).

Administering a battery of mentalization measures to cover the sub-types of mentalization not assessed in the RME was considered. However, given the exploratory nature of this project and the demands already being placed on

participants, the RME was seen as an adequate measure for the purpose of this investigation.

#### 3.5.5. Demographic information

Basic demographic information was also obtained. This included gender, age, level of education and current use of medication.

#### 3.5.6. Psychometric properties of the questionnaires

Reliability analysis was completed on all of measures. They all appeared to have good internal consistency (RTS:  $\alpha = .81$ ; IIP-32:  $\alpha = .91$ ; RME:  $\alpha = .86$ ; ECR-R Anxiety sub-scale:  $\alpha = .95$ ).

### **3.6. Procedure**

#### 3.6.1. Clinical sample

Invitation letters, information sheets, consent forms and questionnaire booklets were sent to clients who had been offered an assessment appointment at one of the services. The invitation letter (see Appendix A) included information about the study and the anonymity and confidentiality of data. Those willing to participate were asked to complete the questionnaires in their own time and bring the completed questionnaire booklet and consent form to their assessment appointment. The full battery of questionnaires took an estimated 20 minutes to complete. The clinician administering the assessment collected these study documents and stored them securely at the research site. Participants were given the opportunity to ask questions by contacting the research team directly or by speaking with a member of the services' clinical staff when attending their assessment appointment (clinical staff at both services were fully briefed on the research proposal so they were able to provide additional information on request). It was also made clear to participants that they had the right to withdraw from the study at any time, without disadvantage to themselves and without being obliged to give any reason. The invitation to participate letter also clearly stated

that non-participation did not have any implications for the subsequent treatment in order to mitigate the possibility of participants feeling obligated to complete the questionnaires. Participants were also given debriefing sheets (see Appendix B) that reiterated the purpose of the research and contact details for local NHS trust patient complaints and liaison services in addition to the research team contact details. Participants interested in hearing about the research findings received a lay summary of the research that was drafted in collaboration with the main research site NHS service user forum to ensure clarity and accessibility.

### 3.6.2. Non-clinical sample

An invitation to participate was sent by email or invitation to an event on a social media website (see Appendix C for the invitation). The invitation contained a link to a secure online version of the questionnaires. The online version required participants to read a participant information sheet presented on the opening page of website. Before proceeding with questionnaires, participants were required to confirm that they were aware that participation was anonymous, they were free to withdraw from the study at any point and that they were aware of how to contact the researchers if they had any questions. Additional information was provided in relation to who they could contact if completing the questionnaires had been distressing in anyway. This included the contact details for the Samaritans and the suggestion that their GP would be able to provide further information and advice in respect to local provision of psychological support in the NHS.

Once participants confirmed that they had read and understood this information and provided consent, they completed the questionnaires and provided the same demographic information as requested from the clinical sample. The questionnaire data was automatically transferred to a secure online database that was only accessible to the researcher.

### 3.6.3. Questionnaire order effects

The psychological process of selecting a response to a questionnaire item involves the cognitive appraisal of alternatives until an acceptability threshold is met (Simon, 1956). This process, described as satisficing, is subject to a number of influences that can impact on the validity and reliability of responses. Weak satisficing (Krosnick, 1991) occurs when respondents do not expend the effort required to provide an optimal answer and choose the first option that can be reasonably justified. Strong satisficing occurs when a respondent does not give sufficient effort to the comprehension and active retrieval process. According to Krosnick (1991), optimal satisficing involves full comprehension of the question being asked and appraisal of all options before making a response. The likelihood of optimal satisficing decreases as the difficulty of a questions increases, with weak satisficing occupying the middle, followed by strong satisficing at the least desirable pole of a continuum. In short, achieving optimal responses to questionnaires occurs when the respondent is sufficiently motivated and when questions are easier to comprehend.

The standardised questionnaires used in this study (multiple choice, likert scale or true/false response formats) each involve making a selection from a finite set of possible responses thus requiring minimal cognitive effort in respect to the options appraisal process and limiting the likelihood of weak satisficing. Difficulties in achieving optimal responses were more likely to occur at the comprehension stage of the response process. The nature of the questionnaire items that make up the IIP-32, RTS and ECR-R mitigated the likelihood of comprehension difficulties: Short and simple statements that relate to personal experiences or perspectives. Although the entire battery was relatively brief, taking approximately 20 minutes to complete, the most demanding questionnaires were administered first as an attempt to mitigate the effects of response fatigue (Egleston, Miller & Meropol, 2011). The shortest, least demanding questionnaires were positioned at the latter half of the battery with demographic information requested at the very end.

A further consideration was the potential for first item responses to have implications for subsequent responses: In seeking to reduce the cognitive demand of responding, participants have been shown to respond more agreeably/disagreeably throughout the questionnaire when they agree/disagree with the first item respectively (Siminski, 2008). The effect of satisficing was assessed by examining the relative frequency of concordant responses to the first questionnaire item with in each questionnaire.

### **3.7. Statistical analysis**

Questionnaire scores for the clinical sample were manually entered into an excel database. Scores from the non-clinical sample were automatically converted into an excel file. Before the data was exported to an SPSS 18.0 database, a number of data conversions were carried out. IIP-32 total and subscale raw scores were converted into t-scores using the IIP-32 manual gender specific conversion charts. The RTS total raw scores were converted into Rasch-scaled scores, essentially converting interval data into ratio data. Although the RTS contains seven sub-scales, there is no Rasch conversion available for these. The questionnaire contains only 17-items so subscales consist of 'true' or 'false' response to 2-3 items. The limitations of this data coupled with the fact that no previously reported analyses utilising sub-scale scores were found in the literature, led to the decision not to use raw subscale data in the analysis. Instead, correct and incorrect responses on the RME were recorded and the total number of correct scores formed the main unit for statistical analysis. ECR-R anxiety subscale questionnaire items 9 and 11 were reversed in line with the scoring guidelines for this measure. Total raw scores (following the reversing) were used in the analysis.

The following steps were used to test the hypotheses in each of the two samples:

1. Correlation analysis of demographic characteristics and the outcome variable (IPD). Evidence of correlations indicated the need to factor related variables into later hierarchical regression analysis.

2. Comparisons of questionnaire scores with population norms to provide some indication of how representative the samples were in relation to clinical and non-clinical samples.
3. Examining the relationship between transliminality and IPD. Initially exploring the possibility of a u-shaped curvilinear relationship using a one-way ANOVA with a quadratic component.
4. Exploring the relationship between transliminality and IPD using correlation analysis in the absence of a curvilinear relationship.
5. Using correlation analysis to establish whether relationships exist between IPD, transliminality, attachment hyperactivity and mentalization.
6. Using a hierarchical regression model with IPD as the dependent variable and other correlated factors as independent variables.
7. Conducting a mediation analysis with transliminality as the proposed mediator of relationships between mentalization and IPD/attachment hyperactivity and IPD.
8. Conducting additional analyses relevant to the research questions if the findings warrant this.

### **3.8. Ethical aspects of the research**

NHS ethical approval was through the NHS National Research Ethics Service and local trust research and development ethics committee following University of East London ethical approval (see Appendix D and Appendix E for approval documents).

The proposed method of recruitment previously described outlines the details of how anonymity of participants will be protected and how informed consent will be sought. Consideration has been given to minimising the demand that completing the questionnaires placed on participants particularly given the exploratory nature of the study and that they were also being asked to complete outcome measures as a part of the assessment process. This was a significant factor determining the type of questionnaires being administered. For example, consideration was given to requesting that participants complete a more comprehensive battery of mentalization questionnaires to cover assessment of implicit ability and



assessment of one's own mental states. In doing so it would have placed what was felt to be too great a burden on participants who were not receiving compensation for their time.

In line with the philosophy of the research sites, reference to potentially stigmatising terms such as 'personality disorder' was avoided in the information about the research that participants received. Furthermore, the participant information sheets (see Appendix F) also made it clear that those invited to participate may not have interpersonal difficulties but we were interested in their responses too.

## **4. RESULTS**

### **4.1 Non-clinical sample**

#### 4.1.1 Sample characteristics

The demographic characteristics of the non-clinical sample ( $N = 60$ ) are provided in Table 1. The mean age of the participants was 35.3 (SD = 11.9) with a range of 19 to 75. The majority of participants were female (58.3 %). Data on ethnicity was not collected as this was not seen as a relevant potentially confounding variable. The inclusion criteria encompassed English reading and writing competency and this was seen as more relevant in relation to the comprehension of the questionnaires.

*Table 1. Demographic characteristics of the non-clinical sample*

Table 1		
<i>Demographic characteristics of the non-clinical sample</i>		
	<u>N</u>	<u>%</u>
<u>Gender</u>		
Male	25	41.7
Female	35	58.3
<u>Age group</u>		
18-25	1	1.7
26-35	46	76.6
36-45	3	5.0
46-55	3	5.0
56-65	4	6.8
66+	3	5.0
<u>Education</u>		
Left school before 16	2	3.3
Full-time education to 16	1	1.7
Full-time education to 18	2	3.3
Undergraduate degree	22	36.7
Postgraduate degree	33	55
<u>Medication</u>		
No medication	50	83.3
Anti-depressant	3	5.0
Anti-histamine	4	6.7
Anti-psychotic	0	0
Other medication	2	1.7
Combination of above	1	1.7

Correlation analyses were carried out to establish whether there were any significant relationships between the demographic characteristics and the outcome variable, Interpersonal difficulties (IIP-32, see Table 2). Kendall's Tau correlation was used for gender and medication given that only two possible rank

scores were possible for these variables (data for medication re-categorised for this analysis as either 'taking medication' or 'not taking medication'). As the measure of education yielded ordinal data, Spearman's Rho was used for this correlation analysis. Pearson's correlation coefficient was used for age as these scores constituted ratio data. The negative correlation with level of education (longer in education relates to fewer interpersonal difficulties) indicated that it was necessary to include education in the hierarchical regression model described later in the analysis. Medication was also included as a variable in these analyses as it was approaching the  $P < 0.05$  level. Although the overwhelming majority of participants in the study fell between the 26-35 age bracket (potentially a reflection of the opportunity sampling method with recruitment through social media websites and the researchers acquaintances), age was not a potentially confounding variable.

*Table 2. Correlations between IPD and demographic characteristics*

Table 2				
<i>Correlations between IPD and demographic characteristics</i>				
	<u>Age</u>	<u>Gender</u>	<u>Education</u>	<u>Medication</u>
<u>IPD</u>	.199	-0.170	<b>-0.349**</b>	<b>.196*</b>
* $p = 0.062$ (2-tailed) ** $p < 0.01$ level (2-tailed)				

#### 4.1.2 Descriptive statistics and norm comparisons - study measures

Mean scores of all the main variables are presented in Table 3. The mean scaled IIP-32 score (64.1) is notably higher than the overall mean of 51.5 achieved in a sample ( $N = 800$ ) broadly representative of the US population in respect to age, gender and ethnicity (Horowitz et al., 2000). The ECR-R mean of 2.7 was markedly lower than 3.56 mean reported by Sibley and Liu (2004,  $N = 17000$ ) for the attachment anxiety subscale of the ECR-R. Scores were consistent with the largest normal population study ( $N = 318$ ) using the RTS which reported a mean of 25 ( $SD = 5$ ) (Lange et al., 2000). Similarly, the RME scores reported in this

study are consistent with other UK normal population studies (e.g. Baron-Cohen et al., 2000).

*Table 3. Mean total scores for study measures*

Table 3		
<i>Mean total scores for study measures</i>		
	<u>Mean</u>	<u>SD</u>
<u>IPD</u>	64.1	7.8
<u>Transliminality</u>	26.5	5.9
<u>Attachment hyperactivity</u>	2.7	1.3
<u>Mentalization</u>	27.7	3.9

#### 4.1.3 Hypothesis testing

##### *4.1.3.1 Research question 1 – Exploring the relationship between transliminality and interpersonal difficulties*

Relating to this research question, hypothesis 1 sought to confirm whether a U-shaped curvilinear relationship existed between transliminality and IPD. The data were initially examined using a scatter plot (see Figure 5). The scatterplot indicated that there was no quadratic relationship. A one-way ANOVA with a quadratic component was therefore not carried out. However, a Pearson correlation analysis revealed that IPD and transliminality did positively correlate ( $r = .300, p < 0.01$ ) - higher scores on the RTS correspond with higher scores on the IIP-32. Although the predicted nature of the relationship between these variables was not borne out in the data, the existence of a linear relationship meant that the other research hypotheses and the overarching model being tested were not invalidated. As transliminality correlated with IPD, further analysis was justified to explore the nature of this relationship and the relationships between the other components of the model.

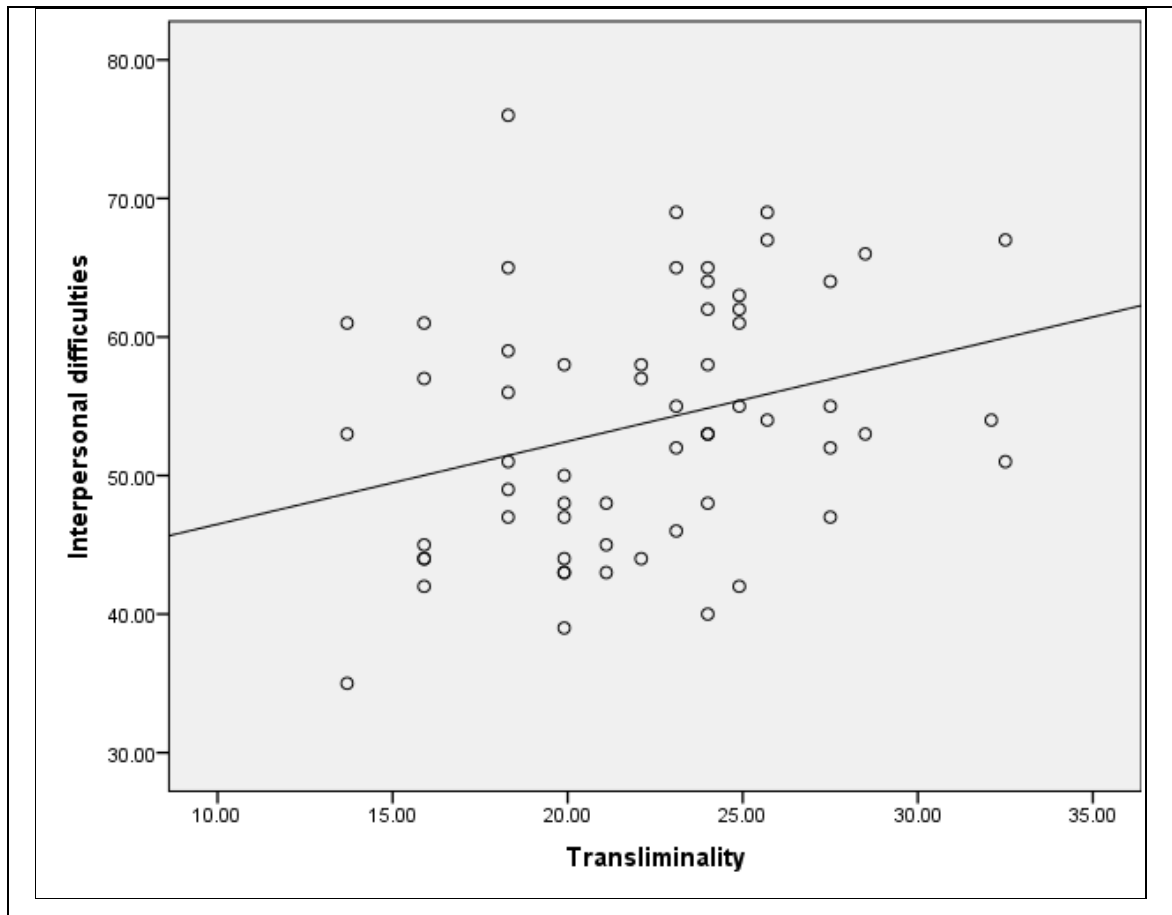


Figure 5: Scatterplot of IPD and Transliminality.

#### 4.1.3.2. Research question 2: Does transliminality mediate the effects of mentalization and attachment hyperactivation on IPD?

##### *Assumptions of normality*

Prior to carrying out correlation and regression analyses required to test this research question, the data were assessed in relation to the assumptions of normality. Doing so is a necessary step to reduce the likelihood of bias emanating from a small number of cases and/or the generalisability of the model being compromised (Field, 2013). In the first stage of this assessment, the skewness and kurtosis of the distributions were examined for each of the test measures. The IIP-32, RTS, RME and ECR-Anxiety scores were found to have

skewness and kurtosis values within acceptable parameters relative to the sample size (skewness and kurtosis < 3.29) (Kim, 2013).

#### *Diagnostic statistics*

Diagnostic statistics were also used to evaluate how well the model fitted the data following each analysis. Cook's distance (Cook, 1977) values were examined to evaluate the influence of outliers and guidelines for removing cases with a Cook's distance value > 1 were followed. No values were removed from any of the analyses. Leverage was assessed using Mahalanobis distance values. This statistic provides an indication of the influence of the outcome variable over the predictor variables. According to Tabachnick and Fidell (2006), Mahalanobis distances greater than 7.81 ( $p = .05$ ) in a study with three predictor variables would be indicative of this kind of influence. The analyses revealed no values above this threshold.

#### *Establishing additivity and linearity*

Prior to conducting regression analyses an assessment of additivity and linearity of the relationships between the outcome variable (IPD) and the predictor variables (RTS, RME and ECR-Anxiety) were examined using a series of correlation analyses (Table 4 shows the results of these correlations).

*Table 4: Correlation coefficients for relationships between all variables*

Table 4			
<i>Correlation coefficients for relationships between all variables</i>			
	<u>Transliminality</u>	<u>Mentalization</u>	<u>Attachment hyperactivity</u>
<u>IPD</u>	<b>0.300*</b>	<b>-0.342*</b>	<b>0.488*</b>
<u>Transliminality</u>	--	-0.093	0.148
<u>Mentalization</u>	--	--	-0.042
* $p < 0.01$ level (1-tailed)			

These data indicated that it was reasonable to accept hypothesis 2 (attachment hyperactivity will positively correlate with IPD) and hypothesis 3 (mentalization

will negatively correlate with IPD) but not hypothesis 4 (transliminality will correlate with mentalization) or hypothesis 5 (transliminality will correlate with attachment hyperactivity). Based on these findings transliminality did not mediate the relationship between mentalization and IPD (hypothesis 6) or the relationship between attachment hyperactivity and IPD (hypothesis 7) as it did not correlate with either of these variables.

#### *Hierarchical multiple regression analysis*

A hierarchical multiple regression analysis was conducted to control for the effects of covariates and to establish the extent of semi-partial correlation between the predictor variables in relation to the dependent variable (IPD). Variables that are seen as controls are typically entered into a hierarchical regression model first followed by the predictor variables of interest. In this model the controlled for variables, education and use of medication, were entered first and included as a consequence of the previous correlation analysis showing they were related to IPD. Mentalization, attachment hyperactivity and transliminality were entered in a second block as these were the predictor variables of interest. The results of this analysis can be seen in Table 5. Firstly, the adjusted  $R^2$  value showed that Model 2 (all variables) predicted 40.8% of the variance in IPD – a substantial portion given that the model contains only five predictor variables. The difference between  $R^2$  (.408) and adjusted  $R^2$  value for model 2 was .055 indicating that the data would account for 5.5% less variance were it derived from the total population. The analysis also revealed that attachment hyperactivity, mentalization and transliminality predicted IPD when level of education and medication were controlled for.

Table 5. Hierarchical regression model with IPD as the dependent variable

Table 5						
<i>Hierarchical regression model with IPD as the dependent variable</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model 1 – Controls**</u>				.371	.138	.107
Education	-.309	2.31	<b>.024*</b>			
Medication	.117	.88	.384			
<u>Model 2 – All variables***</u>				.639	.408	.353
Education	-.121	-.98	.333			
Medication	.084	.73	.470			
Attachment hyperactivity	.399	3.56	<b>.001*</b>			
Mentalization	-.252	-2.27	<b>.027*</b>			
Transliminality	.213	2.01	<b>.050*</b>			
*P < 0.05 level; **Model 1 constant (t =10.80, p =.001); ***Model 2 (t =6.14, p =.001)						

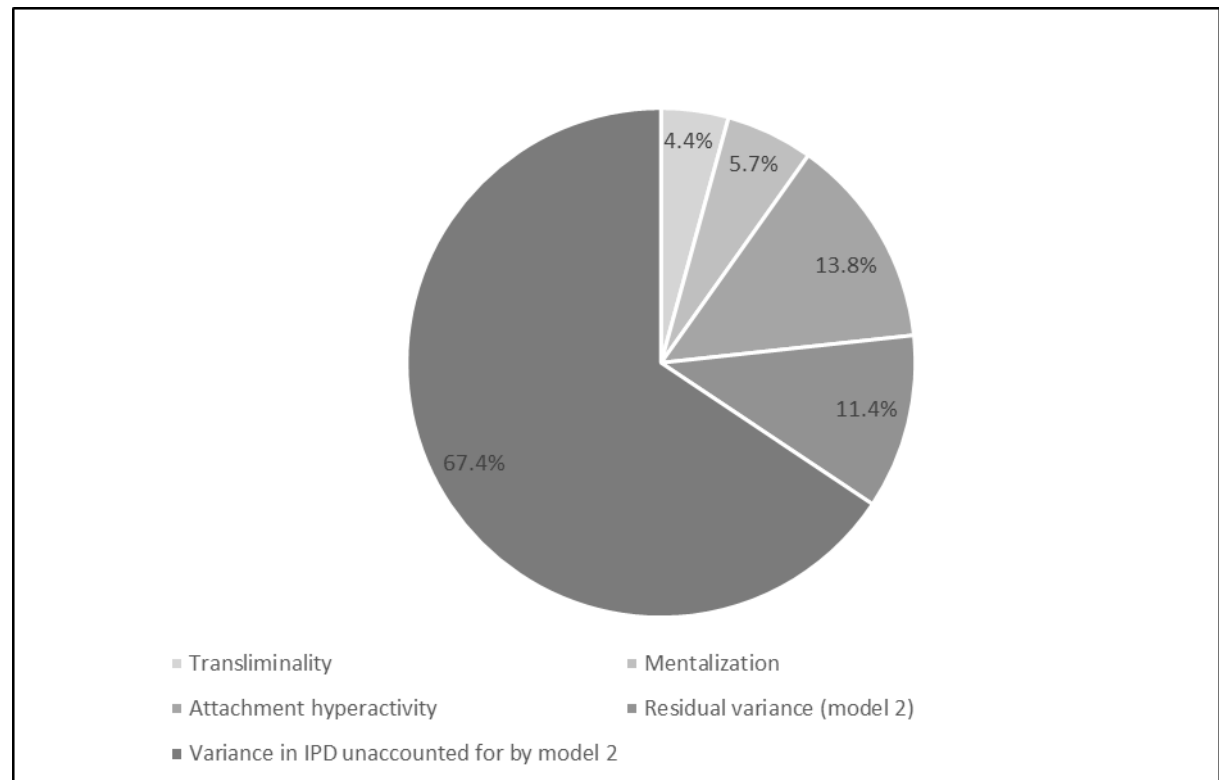
Semi-partial correlation analyses were completed to determine the degree of unique variance accounted for by each predictor. These analyses are presented in Table 6.

Table 6. Semi-partial correlation values for predictor variables

Table 6			
<i>Semi-partial correlation values for predictor variables</i>			
<u>Variable</u>	<u>Regression coefficient (<math>\beta</math>)</u>	<u>Semi-partial correlation</u>	<u>Semi-partial correlation<sup>2</sup></u>
<u>Attachment hyperactivity</u>	.399	.372	.138
<u>Mentalization</u>	-.252	-.238	.057
<u>Transliminality</u>	.213	.210	.044



Table 6 shows that .239 of a total .353 variance in the model was uniquely accounted for by each of the predictors leaving .114 shared variance attributable to the model as a whole (see Figure 6 for an illustration of the proportions of unique and shared variance in IPD based on the semi-partial correlation analysis). It is likely that the shared variance was attributable to the other two predictors (use of medication and education) along with the interactive effects of all the predictors combined.



*Figure 6. Illustrates the proportion of variance in IPD accounted for by each predictor in relation to total variance in IPD.*

In order to establish the incremental validity of transliminality, an additional hierarchical regression model was constructed. In this model, transliminality was moved from level 2 of model (as in the previous model shown in Table 5) to a third level by itself. The  $R^2$  change from model 2 (containing level of education, use of medication, attachment hyperactivity and mentalization) to model 3 (containing all the model 2 predictors plus transliminality) was .044 ( $F$  change = 4.02,  $p = 0.05$ ). This confirmed the findings of the semi-partial correlation analysis

by demonstrating that transliminality was uniquely responsible for .044 of variance in IPD.

In short, these results indicated that the three variables had unique predictive value and that the original hypothesis, that transliminality was a mediating factor for psychological processes related to IPD, could be rejected.

#### 4.1.3.3. Additional hypothesis: Each predictor variable will be related to different aspects IPD.

A further investigation was conducted to establish whether the three predictors accounted for the same or different aspects of IPD. The relationships between each of the predictors and the different dimensions of IPD were assessed using the eight scales of the IIP-32. It was hypothesised that attachment hyperactivity would have predictive value for the majority of scales as it was the strongest predictor of IPD coupled with existing evidence demonstrating the overarching theoretical links between attachment hyperactivity and difficulties in relationships. It was also hypothesised that mentalization and transliminality would predict a different smaller sub-set of scales to each other. The unique variance accounted for by each predictor was seen as potentially resulting from each being associated with divergent processes that predict IPD. Firstly, a series of correlation analyses were carried out (see Table 7).

Table 7. Correlation coefficients for the three predictors and IIP-32 subscales

Table 7			
Correlation coefficients for the three predictors and IIP-32 subscales			
<u>IIP-32 scale</u>	<u>Attachment</u> <u>hyperactivity</u>	<u>Mentalization</u>	<u>Transliminality</u>
1 - Domineering/controlling	<b>.390**</b>	<b>-.223*</b>	<b>.288*</b>
2 – Vindictive/self-centred	<b>.302**</b>	<b>-.226*</b>	.198
3 – Cold/distant	<b>.240*</b>	<b>-.256**</b>	.124
4 – Socially inhibited	<b>.299*</b>	<b>-.052*</b>	.037
5 - Non-assertive	<b>.352**</b>	<b>-.232*</b>	.167
6 – Overly accommodating	<b>.339**</b>	<b>-.224*</b>	.153
7 – Self-sacrificing	.208	-.181	<b>.258*</b>
8 – Intrusive/needy	<b>.432**</b>	-.163	<b>.278*</b>
* Significant at the $p < 0.05$ level ** Significant at the $p < 0.01$ level			

Then a series of hierarchical regression analyses were conducted with each IIP-32 scale as the dependent variable. For each sub-scale regression model, only correlated predictors were included. When demographic characteristics correlated with a subscale, these were entered in the first level of the model followed by the measures of interest. For scales with no demographic correlates, simple regression analyses were carried out. Scale 7 did not have any correlates other than transliminality so it was not necessary to undertake a regression analysis as this would effectively be a repetition of the correlation analysis. The results of this series are shown in Tables 8 to 14.

*Table 8. Simple regression analysis with IIP-32 sub-scale 1 (Domineering /controlling) as the dependent variable (DV)*

Table 8						
<i>Regression analysis with IIP-32 sub-scale 1 (Domineering /controlling) as the DV</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model**</u>				.492	.242	.202
Attachment hyperactivity	.351	2.99	<b>.004*</b>			
Mentalization	-.188	-1.61	.115			
Transliminality	.221	1.87	<u>.067</u>			
*p < 0.05 level; **Model 1 constant (t =3.57, p =.001); underline denotes approaching significance						

*Table 9. Simple regression analysis with IIP-32 sub-scale 2 (Vindictive/self-centred) as the dependent variable*

Table 9						
<i>Regression analysis with IIP-32 sub-scale 2 (Vindictive/self-centred) as the DV</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model**</u>				.370	.137	.107
Attachment hyperactivity	.293	2.38	<b>.021*</b>			
Mentalization	-.214	-1.74	<u>.088</u>			
*p < 0.05 level; **Model constant (t =9.41, p =.001); underline denotes approaching significance						

*Table 10. Hierarchical regression analysis with IIP-32 sub-scale 3 (Cold/distant) as the dependent variable*

Table 10						
<i>Regression analysis with IIP-32 sub-scale 3 (Cold/distant) as the DV</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model 1 – Controls**</u>				.339	.115	.100
Gender	-.339	-2.74	<b>.008*</b>			
<u>Model 2 – All variables***</u>				.526	.277	.238
Gender	-.333	-2.89	<b>.005*</b>			
Attachment hyperactivity	.265	2.31	<b>.024*</b>			
Mentalization	-.292	-2.55	<b>.014*</b>			
*p < 0.05 level; **Model 1 constant (t = 20.34, p = .001); ***Model 2 (t = 12.12, p = .001)						

*Table 11. Hierarchical regression analysis with IIP-32 sub-scale 4 (Socially inhibited) as the dependent variable*

Table 11						
<i>Regression analysis with IIP-32 sub-scale 4 (Socially inhibited) as the DV</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model 1 – Controls**</u>				.519	.269	.257
Medication	.519	4.62	<b>.000*</b>			
<u>Model 2 – All variables***</u>				.586	.343	.308
Medication	.472	4.25	<b>.000*</b>			
Attachment hyperactivity	.250	2.29	<b>.026*</b>			
Mentalization	-.109	-.93	.330			
*p < 0.05 level; **Model 1 constant (t = 40.08, p = .001); ***Model 2 (t = 6.87, P = .001)						

*Table 12. Hierarchical regression analysis with IIP-32 sub-scale 5 (Non-assertive) as the dependent variable*

Table 12						
<i>Regression analysis with IIP-32 sub-scale 5 (Non-assertive) as the DV</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model 1 – Controls**</u>				.287	.082	.066
Age	.287	2.28	<b>.026*</b>			
<u>Model 2 – All variables***</u>				.493	.243	.202
Age	.271	2.31	<b>.025*</b>			
Attachment hyperactivity	.352	3.03	<b>.004*</b>			
Mentalization	-.178	-1.51	.136			
*p < 0.05 level; **Model 1 constant (t =13.21, p =.001); ***Model 2 (t =6.22, p =.001)						

*Table 13. Hierarchical regression analysis with IIP-32 sub-scale 6 (Overly accommodating) as the dependent variable*

Table 13						
<i>Regression analysis with IIP-32 sub-scale 6 (Overly accommodating) as the DV</i>						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model 1 – Controls**</u>				.346	.120	.105
Education	-.346	-2.81	<b>.007*</b>			
<u>Model 2 – All variables***</u>				.445	.198	.155
Education	-.218	-1.64	.106			
Attachment hyperactivity	.263	2.08	<b>.042*</b>			
Mentalization	-.149	-1.18	.241			
*p < 0.05 level; **Model 1 constant (t =11.02, p =.001); ***Model 2 (t =6.91, p =.001)						

Table 14. Hierarchical regression analysis with IIP-32 sub-scale 8 (Intrusive/neediness) as the dependent variable

Table 14						
Regression analysis with IIP-32 sub-scale 8 (Intrusive/neediness) as the DV						
<u>Variables</u>	<u><math>\beta</math></u>	<u>t-value</u>	<u>p</u>	<u>R</u>	<u>R<sup>2</sup></u>	<u>Adjusted R<sup>2</sup></u>
<u>Model 1 – Controls**</u>				.177	.031	.015
Education	-.177	-1.37	.177			
<u>Model 2 – All variables***</u>				.487	.238	.197
Education	-.057	-.46	.647			
Attachment hyperactivity	.382	3.06	<b>.003*</b>			
Transliminality	.225	1.90	<u>.062</u>			
*p < 0.05 level; **Model 1 constant (t=7.47, p=.001); ***Model 2 (t=2.61, p=.001) underline denotes approaching significance						

Table 15 provides a collective summary of these analyses. In short, this series revealed that attachment hyperactivity was predictor of the majority of IIP-32 sub-scales as hypothesised. Mentalization predicted scores on scales 3 to 5 and approached significance as a predictor of scale 2 ( $p = .088$ ). Transliminality predicted scale 7 (based on the previous correlation analysis) and is approaching significance as a predictor of scales 1 ( $p = .067$ ) and 8 ( $p = .062$ ). The different subsets of IIP-32 scales predicted by mentalization and transliminality, falls in line with hypothesis that these variables are associated with divergent processes that predict IPD.

Table 15. Summary of beta values from hierarchical regression analyses for IIP-32 subscales

Table 15			
Summary of beta values from regression analyses for IIP-32 subscales			
<u>IIP-32 scale</u>	<u>Attachment hyperactivity</u>	<u>Mentalization</u>	<u>Transliminality</u>
1	<b>.351**</b>	-.188	<b>.221*</b>
2	<b>.293**</b>	<b>-.214*</b>	-
3	<b>.265**</b>	<b>-.292**</b>	-
4	<b>.250**</b>	<b>-.109**</b>	-
5	<b>.352**</b>	<b>-.178**</b>	.167
6	<b>.263**</b>	-.149	-
7	-	-	<b>.278**</b>
8	<b>.382**</b>	-	<b>.225*</b>
*Significant at the $p < 0.05$ level ** Significant at the $p < 0.1$ level			
1. Domineering/controlling, 2. Vindictive/self-centred, 3. Cold/distant, 4. Socially inhibited, 5. Non-assertive, 6. Overly accommodating, 7. Self-sacrificing, 8. Intrusive/needy			

#### 4.1.4. Summary of non-clinical sample results

It has clearly been demonstrated that transliminality is not a mediator of the relationship between attachment hyperactivity and IPD or the relationship between mentalization and IPD. Instead, these variables were shown to be unrelated to one another and to independently predict IPD, with each accounting for a significant unique portion of variance. This was seen as a possible indication that each variable is responsible for divergent processes that predict IPD. In line with the literature, the additional analysis of the IIP-32 scales showed that attachment hyperactivity predicted a near full range IPD sub-types. Mentalization and transliminality predicted separate IPD scales to each other lending support to hypothesis that these variables are related to different psychological processes. In short, attachment hyperactivity appears to be an active ingredient across



different aspects of IPD whereas mentalization and transliminality seem to be related to a respectively unique set of sub-types of IPD.

## 4.2. Clinical sample

### 4.2.1 Sample characteristics

The demographic characteristics of the clinical sample are provided in Table 16. The mean age of the participants was 34.9 (SD = 12.0) with a range of 19 to 58. The majority of participants were female (68.7%).

*Table 16. Demographic characteristics of the clinical sample*

Table 16		
<i>Demographic characteristics of the clinical sample</i>		
	<u>N</u>	<u>%</u>
<u>Research site</u>		
Inner city	13	81.2
Suburban district	3	18.8
<u>Gender</u>		
Male	5	31.3
Female	11	68.7
<u>Age group</u>		
18-25	3	18.9
26-35	8	50
36-45	3	18.9
46-55	1	6.3
56-65	2	12.6

<u>Education</u>		
Left school before 16	1	6.3
Full-time education to 16	5	31.3
Full-time education to 18	4	25
Undergraduate degree	2	12.5
Postgraduate degree	4	25
<u>Medication</u>		
No medication	2	12.5
Anti-depressant	6	37.5
Anti-histamine	0	0
Anti-psychotic	1	6.3
Other medication	3	18.8
Combination of above	4	25.5

#### 4.2.2 Descriptive statistics and norm comparisons - study measures

Mean scores of all the main variables are presented in Table 17. The mean scaled IIP-32 score (65.6) is notably higher than the overall mean of 51.5 achieved in the US normal population sample ( $N = 800$ ) (Horowitz et al., 2000) as anticipated given the prevalence of IPD in clinical populations (McEvoy et al., 2013). The ECR-R mean of 4.2 was also higher than the 3.56 normal population mean reported by Sibley and Liu (2004,  $N = 17'000$ ) for the attachment hyperactivity subscale of the ECR-R. Scores were consistent with the largest normal population study ( $N = 318$ ) using the RTS which reported a mean of 25 ( $SD = 5$ ) (Lange et al., 2000). Similarly, the RME scores reported in this study are consistent with other UK normal population studies (e.g. Baron-Cohen et al., 2000). In comparison with the non-clinical sample, the means are remarkably similar other than for attachment hyperactivity where the clinical sample mean is considerably higher.

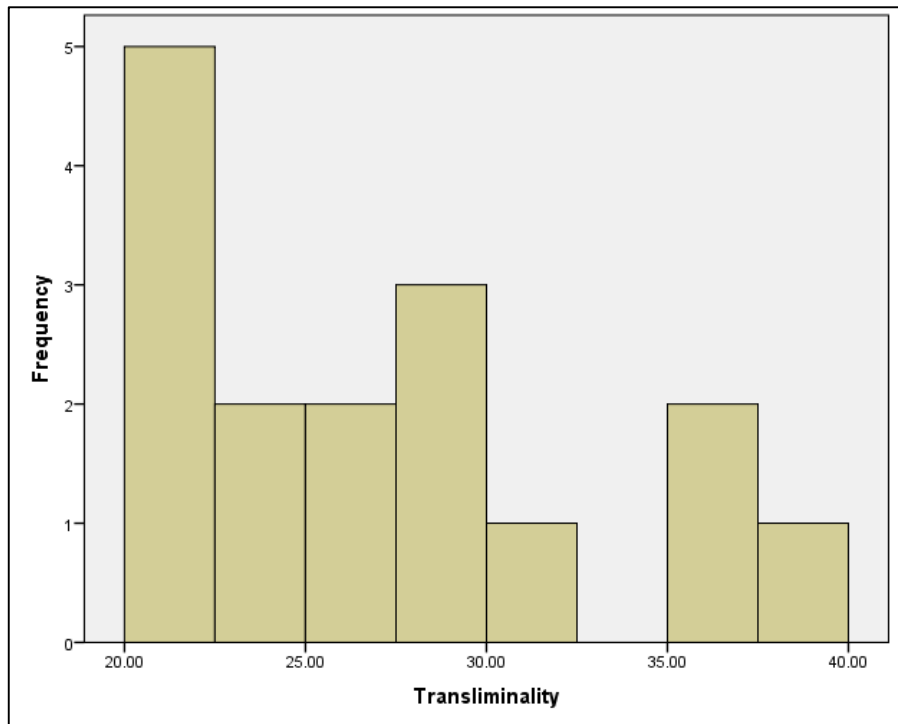
*Table 17. Mean total scores for study measures for clinical and non-clinical samples*

Table 17				
<i>Mean total scores for study measures – clinical and non-clinical samples</i>				
	<u>Clinical</u>		<u>Non-clinical</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
<u>IPD</u>	65.6	9.0	64.1	7.8
<u>Transliminality</u>	27	5.5	26.5	5.9
<u>Attachment hyperactivity</u>	4.2	1.5	2.7	1.3
<u>Mentalization</u>	27.25	4.21	27.7	3.9

#### 4.2.3. Hypothesis testing

##### *4.2.3.1. Research question 1 – Exploring the relationship between transliminality and interpersonal difficulties*

To explore this research question, descriptive statistics and correlation analyses were used. It was not possible to construct any regression models as a result of the small sample size limiting the degree of power. Before conducting any analyses, the scores on the measures of interest were inspected to establish whether they met the assumptions of normality. Histograms indicated that the distribution of RTS scores were positively skewed (see Figure 7). This was investigated further by converting the measure scores into z-scores, establishing the skewness value of the converted dataset and dividing the skewness value by skewness standard error. The resulting value (1.11) was below the 1.96 threshold of significant skewness (Field, 2013, p. 184) indicating that the data was not positively skewed and that the distribution met the assumptions of normality. It was therefore deemed appropriate to proceed with parametric statistical analyses.



*Figure 7. Distribution of scores on the Revised Transliminality Scale*

In the first stage of exploring the relationship between IPD and transliminality, a scatterplot of these two variables was inspected (see Figure 8). There was no clear pattern to this data other than some indication that greater levels of IPD corresponded with lower levels of transliminality. Again there was clearly no evidence of a U-shaped curve relationship between these two variables as predicted in hypothesis 1.

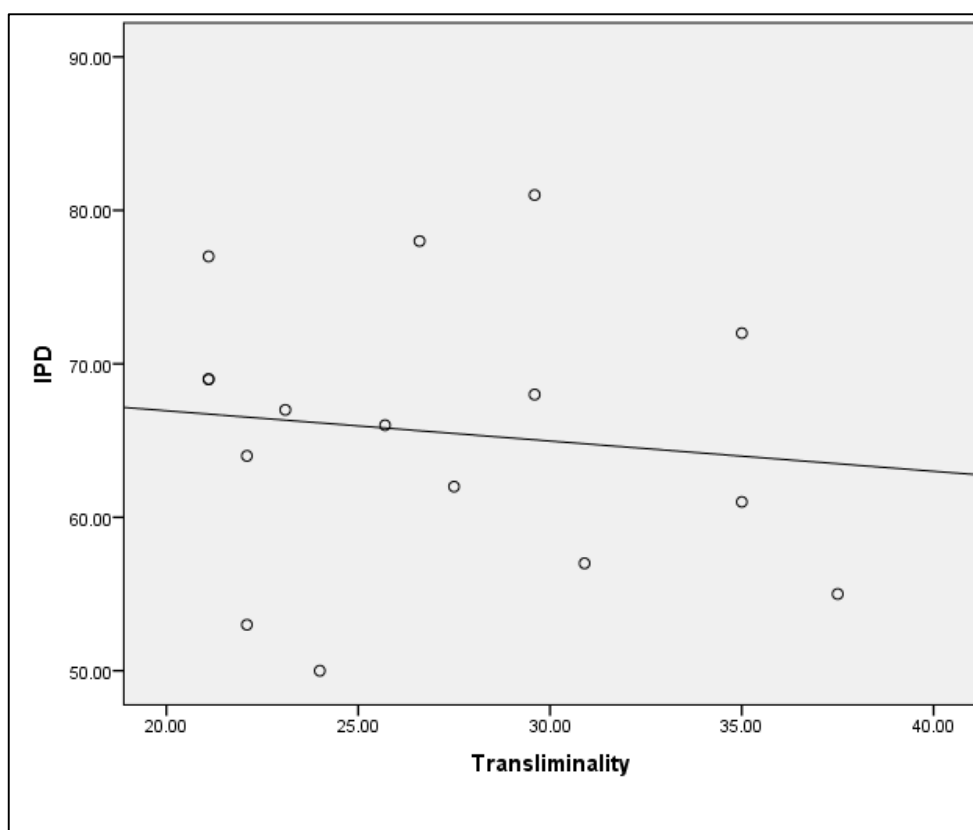


Figure 8. Scatterplot of IPD and Transliminality with line of best fit.

In the absence of a curvilinear relationship and the possibility of a positive correlation between IPD and transliminality, correlation analyses were carried out to establish pattern of relationships between the measures of interest. Table 19 shows the results of these analyses.

Table 19: Correlation coefficients for relationships between all variables

Table 19			
<i>Correlation coefficients for relationships between all variables</i>			
	<u>Transliminality</u>	<u>Mentalization</u>	<u>Attachment hyperactivity</u>
<u>IPD</u>	-.119	.036	<b>.602*</b>
<u>Transliminality</u>	--	-.306	.129
<u>Mentalization</u>	--	--	.004
* $p < 0.01$ level (2-tailed)			

These results show that attachment hyperactivity is the only correlate of IPD. The lack of relationships between the predictor variables is consistent with the findings from the non-clinical sample. This provided further evidence supporting the rejection of the hypothesis that transliminality is a mediating variable in a mentalization-based model of IPD.

Correlation analysis of the relationships between the predictors and IIP-32 subscales revealed no significant correlations with transliminality or mentalization. Attachment hyperactivity correlated with scales 5 ( $r = .512$ ,  $P = .025$ ) and scale 7 ( $R = .486$ ,  $P = .033$ ). The relationship with scale 7 (the only scale not predicted by attachment hyperactivity in the non-clinical sample) further demonstrates that attachment hyperactivity is an active ingredient across different aspects of IPD.

#### *4.2.3.2. Summary of clinical sample results*

The small sample size limited both the type of statistical analyses that could be appropriately conducted and the generalisability of the findings. Consequently, the results from the clinical sample were viewed with a high degree of caution. The mean scores for IPD, transliminality and mentalization were similar to the non-clinical sample but there was no evidence of relationships between these variables. Attachment hyperactivity was the only correlate of IPD. In summary, these findings reinforce the notion that attachment hyperactivity is a robust predictor of IPD and that the predictor variables seem to be unrelated. To make further inferences would be ill-conceived given the limitations inherent in using a small dataset.

## 5. DISCUSSION

This study intended to explore the relationship between transliminality, IPD and two known predictors of IPD – attachment hyperactivity and mentalization. Two research questions were asked: ‘Is transliminality related to IPD and what is the nature of this relationship?’ and secondly, ‘Does transliminality mediate the effects of mentalization and attachment hyperactivation on IPD?’ It was hypothesised that transliminality would play a mediating role in respect to the variance in IPD accounted for by these two predictors. This was based on the view that this mediating relationship represented the role of unconscious processes within these mechanisms. More generally, the purpose of this thesis was to provide some indication of the role of unconscious processes in relation to our understanding of psychopathology. The mentalization model of interpersonal difficulties provided a fitting context for this investigation given that the constructs that constitute this model are theoretically linked to unconscious mechanisms. The findings from the non-clinical and clinical samples are discussed in turn before the results as a whole are considered from a theoretical and clinical perspective. Emphasis is placed on the non-clinical data as a consequence of the small clinical group dataset and limited statistical analyses that could appropriately be conducted using this sample.

### 5.1. Summary of findings

#### 5.1.1. Non-clinical sample

##### *5.1.1.1. Evaluating the data in relation to the hypothesised model*

The result of the hierarchical regression model with IPD as the dependent variable showed that attachment hyperactivity and mentalization independently predict IPD. This result falls in line with previous research in this area (Fonagy & Bateman, 2004; Levy et al., 2011; Scott et al., 2009). In this model, transliminality

was also a significant predictor. Moreover, the model as whole accounted for 40.4% of the variance in IPD – a substantial portion particularly given that the model contained only five predictors, two of which were level of education and use of medication.

It was hypothesised that there would be a curvilinear relationship between IPD and transliminality reflecting the unconscious process associated with reactive and cut-off coping styles with those who reported mid-range of transliminality expected to report low IPD. This was postulated as being reflective of an adaptive degree of gatedness indicating that thick and thin-skinned defensive strategies were not being employed. Although this data was drawn from a non-clinical sample, the scores on the IIP-32 represented a wide spectrum of IPD (total IIP-32 t-score range of 35 to 76) spanning those with low levels of IPD through to those likely to be experiencing very high levels of distress relative to the non-clinical sample (IIP-32 total t score > 70) (Horowitz et al, 2000). Consequently, it was considered to be justifiable to conduct this analysis using a non-clinical sample. The hypothesised curvilinear relationship was not evident in the data, however greater transliminality was shown to predict higher levels of IPD. This finding, coupled with the evidence that it had unique predictive value based on semi-partial correlation analyses, indicated that it was worth considering how transliminality relates to existing theories of IPD. Additionally, it was clear that transliminality did not mediate the relationships between IPD and the other two predictors of interest, in contradiction to the mediation hypothesis. Consequently, a key discussion point in considering the non-clinical sample results, is how to explain the apparently distinct psychological processes accounted for by each of the predictors. If transliminality predicts IPD but is not closely related to the attachment hyperactivity or mentalization, what part is it playing?

#### *5.1.1.2. Additional analysis of IIP-32 sub-scales*

The results show that transliminality and mentalization predicted three out of eight and four out of eight IIP-32 subscales respectively (if the relationships approaching  $P = 0.05$  are included). Attachment hyperactivity predicted seven



subscales and therefore appears to be an active ingredient across different aspects of IPD. Conversely mentalization and transliminality seem to be related to a respectively unique set of sub-types of IPD. Consideration is given to these findings and what they potentially reveal about the different psychological processes associated with each predictor. In short, these findings are used to help understand the pattern of relationships seen in the overarching model.

### 5.1.2. Clinical sample

Small sample size ( $N = 16$ ) presented limitations in terms of generalisability of the findings. The sample characteristics were surprisingly similar to the non-clinical group in respect to age, level of education and scores on the measures of interest other than attachment hyperactivity for which scores were notably higher. The results of correlation analyses revealed similar findings to the non-clinical sample in respect of the predictor variables being unrelated. Attachment hyperactivity was the only predictor variable to correlate with IPD. It is likely that the small sample size played a role in failure to detect relationships between IPD and mentalization or transliminality. Although, it would have been advantageous to have a larger clinical sample and to have conducted the same series of analyses using data from this group, the high levels of IPD in the non-clinical group indicate that the findings from the latter sample may have generalisability to clinical populations. Given the limitations of the clinical sample analysis, the discussion that follows focuses on the findings from the non-clinical sample.

## **5.2. Relating the findings to existing theory**

### 5.2.1. What the findings reveal about the mentalization-based model of IPD

#### *5.2.1.1 The 'loose coupling' of mentalization and attachment hyperactivation*

The connection between attachment experiences and mentalization was briefly discussed in the introduction in respect of mentalizing attachment Figures playing a key role in the development of securely attached individuals (Fonagy et al.,

1991). It was also noted that increasing mentalizing ability has been shown to predict a reduction in interpersonal difficulties (Fonagy & Bateman, 2004) and that hyperactive attachment representations play a key role in the aetiology of these problems (Fonagy & Bateman, 2006). Neurobiological research has lent further support to this theory of IPD development. Oxytocin, the chemical released in large amounts following childbirth, appears to mediate the relationship between mother-child attachment and mentalization. High levels of oxytocin is also associated with mothers demonstrating heightened mentalizing ability in relation to their infants (Domes, Heinrichs, Michel, Berger, & Herpertz, 2007). The mentalization model therefore implicates these two systems as the causes of IPD and the evidence from this research project supports this view.

Although there is evidence strongly indicating that early attachment experiences are responsible for mentalization deficits and greater attachment hyperactivity, it is less clear whether these two systems interact or share common processes when interpersonal difficulties manifest. Based on this evidence of their shared origins, it has been suggested that they are 'loosely coupled' (Fonagy & Bateman, 2006). Yet the findings in this research project, that attachment hyperactivity and mentalization did not relate to one another, and there was relatively little shared variance between these variables in relation to IPD, suggests that attachment and mentalization systems may function as distinct psychological processes despite both being related to early attachment experiences. While the relationship between these systems was not originally identified as relevant in relation to the research questions posed in this thesis, it is nonetheless a noteworthy finding.

There are plausible explanations in the literature explaining the apparent lack of a relationship between attachment hyperactivity and mentalization. Experiencing a heightened state of arousal more frequently in interpersonal contexts (attachment hyperactivity) does not obviously relate to the meta-cognitive aspects of mentalization in terms of shared processes associated with these phenomena. Indeed, A meta-analysis found that across 107 neuroimaging studies

investigating mentalization there is consistent evidence of activation of the medial prefrontal cortex both for tasks involving mentalizing the self and others (Denny, Kober, Wager & Ochsner, 2012) whereas attachment hyperactivity seems to be associated with regions of Amygdala related to negative affect (Riem, Bakermans-Kranenburg, van Ijzendoorn, Out & Rombouts, 2012). The most probable connection between these two processes would seem to be the potential inhibitory effect of attachment hyperactivation on mentalizing ability as suggested by Bateman and Fonagy (2012, p. 18) in light of neuroimaging studies (e.g. Mayberg, Liotti, Brannan, McGinnis, Mahurin & Jerabek, 1999) that support this claim.

Although the literature would seem to indicate that they are distinct processes, one would still expect high attachment hyperactivity to correlate with deficits in mentalization given their shared aetiological pathway. Is this an indication that it is possible for someone with a high degree of attachment hyperactivity to develop good mentalizing skills? Indeed, mentalization skills can be developed throughout life evident in the effectiveness of MBT (e.g. Fonagy & Bateman, 2004) indicating that it may be possible for individuals who have experienced insecure attachment relationships early in life, to develop their ability to mentalize in other attachment relationships. It may also be the case that parents who inconsistently meet the needs of the child may still be creating a context for their offspring to develop mentalizing skills to some extent and that these skills are developed further in other relationships.

An alternative or supplementary explanation may be rooted in the inhibitory effects of emotional arousal on mentalizing abilities. Perhaps those who supposedly have mentalization deficits are fully capable of mentalizing in the absence of attachment hyperactivity but difficulties manifest more frequently because of a predisposition to experience inhibitory emotional arousal. Completing the Reading the Mind in the Eyes Test, examines mentalizing ability under benign conditions and as a result may fail to detect difficulties in mentalizing that manifest under more ecologically valid circumstances. Interestingly, research has demonstrated that those with a diagnosis of BPD

demonstrate more advanced mentalizing abilities than a non-clinical control group on the RME (Fertuck et al., 2009) and on other measures of mentalization that similarly do not activate the attachment system (Franzen et al., 2010). While these tests demonstrate that a deficit in mentalizing may be dependent on emotional arousal, it has also been argued that tests such as the RME do not tap into higher order meta-cognitive mentalizing functions for which there are clear differences in performance between people with high levels of IPD and those with low levels of IPD (Semerari, Carcione, Dimaggio, Nicoló, Pedone & Procacci, 2005).

#### *5.2.1.2. Why was transliminality not related to mentalization and attachment hyperactivity?*

A key development in the transliminality construct was the addition of the role of 'creative' or active conscious processes in arousing material from subliminal consciousness thus making transliminality a two way process. This adjunct came about as a result of a study revealing a series of correlates associated with active conscious processes (Thalbourne et al., 1997). Transliminality therefore encompasses a creative process that includes eliciting material from the unconscious and creatively shaping it into something semantically meaningful. Mentalization is the ability to understand one's own mental state and the mental states of others that involves imaginative mental activity that allows us to observe and appraise intentional mental states. It was therefore hypothesised that mentalization requires or encompasses some aspects of transliminal processes. It follows that in order to appraise one's own mental state or the mental state of others, it is necessary to appraise material emanating from the unconscious representations within an interpersonal context. It was also hypothesised that this process also involves actively eliciting unconscious representations related to experiences in relationships to help inform judgments of mental states.

There are several possibilities that may explain why the mediation hypothesis was not supported by the data from this study. The process of MBT centres around accessing conscious or near conscious representations and making interpretations that are just beyond the client's conscious awareness (Fonagy et

al., 2012). The objective here is to achieve a greater degree of representational integration and coherence. This would seem to fit with the idea that transliminality plays a mediating role but perhaps this hypothesis placed too great an emphasis on the process of accessing near conscious representations. The ability to access these representations may be a fairly rudimentary skill or involve psychological processes for which there is little variation in ability between people. If this is the case, variance in mentalization is less likely to be connected to the ability to access conscious or near conscious representations (although an integral first step), but more about a set of meta-cognitive skills – observing one's own thoughts and emotions and evaluating them in an interpersonal context or evaluating other people's mental states and appraising the accuracy of these judgments. In short, variation in the ability to mentalize does not arise because some people are better than others at eliciting unconscious relational representations.

Additionally, the creative processes referred to in the transliminality construct may well be denoting a different type of conscious appraisal that is less about thinking about thinking. Active 'fantasy proneness' was one of the key correlates that led to the view that transliminality involves creative processes (Thalbourne et al., 1997) and this type of appraisal or manipulation of psychological material constitutes what could be described as a way of actively exploring the meaning of experiences in a non-goal oriented fashion. It follows that those who are more transliminal may be more likely to use conscious creative skills to shape and explore psychological material that is not immediately or obviously meaningful. These skills may also be applied to experiences that the less fantasy prone would consider easily explicable or mundane. Conversely, those who are less transliminal may not give anomalous experiences the same kind of conscious attention. Perhaps instead, the less transliminal are more likely to dismiss experiences that do not immediately adhere to their existing representations or subjective reality by simply not attempting to process and integrate them. There is clearly a distinction between this type of mental activity and mentalizing. The creative processes associated with transliminality seem to be about exploring all experiences in a manner that is limited only by the boundaries of imagination and has no immediate purpose. Mentalization on the other hand, can be understood

as an investigative process through which the comprehension of mental states is sought using contextual information as a point of reference. It is a task-focussed mental activity used to help negotiate the immediate environment. Put in this context, it is possible to see how mentalization and transliminality were unrelated in both clinical and non-clinical samples.

### 5.2.3. Explaining the positive relationship between transliminality and IPD

In the following sections, the meaning of the pattern of relationships observed in this study is explored further in the context of the wider literature related to unconscious processes and theories of IPD.

#### *5.2.3.1. Transliminality and thick and thin-skinned narcissistic states*

The underlying notion that those experiencing IPD move between thick and thin-skinned narcissistic states (Bateman, 1998; Rosenfeld, 1987) was evaluated in this study. It was hypothesised that those with high levels of IPD would be either highly transliminal or marginally transliminal reflecting the hypothesised poles of gatedness associated with each of these states in relation to the accessibility of unconscious material (hypothesis 1). Rejection of the hypothesis indicated that the notion of transliminality and Rosenfeld's theory theoretically mapping onto one another was overly simplistic.

Thick and thin-skinned strategies have different functions in different contexts and are only employed when the ego is under threat. In a thin-skinned narcissistic state, an individual is 'fragile and vulnerable' (Bateman, 1998, p. 13) and experiences a heightened sensitivity to rejection coupled with a sense of shameful inadequacy. To preserve the self, the individual attempts to merge with an idealised other through any means possible, masochistically degrading themselves and adopting a subservient position in relation to others. By contrast, a thick-skinned state is characterised by an inaccessible and superior manner. The sense of self is maintained through the over identification with the destructive

self. To avoid psychic disintegration feelings of omnipotence must be maintained with survival characterised by 'triumphing' over life and others. While in a thick-skinned state, the individual is defensively aggressive and impermeable to the suggestions or interpretations of others.

Rosenfeld's heuristic has been criticised on the grounds that it is too categorical and clients in psychotherapy can be seen to move rapidly between thick and thin-skinned positions (Bateman, 1998). Although this critique is based primarily on observations in clinical practice as opposed to empirical investigation (the same can be said of Rosenfeld's theory), this view potentially provides a clue as to why a curvilinear relationship between transliminality and IPD was not found.

Following Bateman's model, narcissistic states are highly unstable, sometimes changing moment to moment, in contrast to transliminality which has been presented as stable trait, evidenced by the good test-retest reliability of the RTS (Thalbourne, 2000). This could be viewed as evidence that transliminality does not form part of these defensive strategies, however this could be a hasty conclusion. The test-retest reliability of the RTS was evaluated under benign conditions and to date, there have been no attempts to investigate within-subject variation in transliminality under different conditions. In a similar fashion to deficits in mentalization resulting from emotional arousal, thick and thin-skinned states occur in response to threats to the ego. Therefore, if it was possible to measure transliminality at a time when such a threat was live, the hypothesised patterns of very low or high transliminality corresponding with thick and thin-skinned organisations may become observable. Accordingly, the observed correspondence with high levels of transliminality and high IPD may reflect a baseline level from which there is significant deviation in the presence of ego threatening stimuli.

#### *5.2.3.2. Transliminality and Kernberg's continuum*

The proposition that personality disorders occupy the 'borderline' point on a continuum consisting of 'normal' or 'healthy', neurotic, borderline and psychotic personality organisations (Kernberg, 1975) was investigated in light of evidence

showing that transliminality is related to psychotic experiences (Thalbourne & Maltby, 2008). It was hypothesised that the borderline characteristic distortion of reality perception is a consequence of, or related to, high transliminality but to a lesser extent than those with psychosis. It was proposed that resultant unconscious uprushing of emotion and unintegrated representations lead to the use of maladaptive defence mechanisms as a means of avoiding psychic pain. The results from this study lend support to this view as transliminality predicted IPD. Although it is not possible to definitively locate transliminality on a continuum for those experiencing IPD in relation to healthy, neurotic or psychotic points, it is apparent that transliminality relates to IPD and psychoticism to a significantly greater extent than those not experiencing these types of difficulties. This pattern and Kernberg's continuum may potentially be connected to evidence indicating that a lack of cognitive inhibition (a failure in the system limiting conscious content) is a key factor in the development of psychosis (McCreery & Claridge, 1996) and is also associated with IPD (Derryberry & Rothbart, 1997; Korfine & Hooley, 2000). Furthermore, for those with a diagnosis of BPD, cognitive inhibition is moderated by emotional arousal (Domes, Winter, Schnell, Vohs, Fast & Herpertz, 2006). Cognitive inhibition has been described by Clark (2010) as the operation of our system of constructs or schemas, directing our attention and allowing us to make connections between the current content of conscious awareness and relevant memories. Therefore the high levels of transliminality observed in relation to high IPD can be seen as evidence of a common disturbance, disrupting the sense of self to some extent for those experiencing IPD and to a greater extent for those experiencing psychosis.

In the next section, further consideration is given to how transliminality may play a role in psychopathological and adaptive mechanisms drawing together psychoanalytic and personal construct theories.

#### *5.2.3.3. The role of transliminality in adaptive and pathological mechanisms*

As previously noted, the epistemological problems with scientifically investigating phenomenological experience have led to diminishing interest in this area of



research (Rose, 2006). As a result, the development of the RTS represents a relatively isolated example of an attempt to empirically capture experience which transcends or goes beyond the boundaries of the self (Clark, 2010, p. 103). The unwieldy and somewhat intangible quality of the construct means that words seem to be a wholly inadequate tool for describing this type of phenomenon. Putting the findings of this study in context therefore necessitates relating them back to literature concerned with the phenomenological nature of spiritual, mystical and psychotic experiences as therein lie theoretical frameworks that can help us understand the relationship between transliminal processes and IPD.

Personal construct theory (Kelly, 1955, 1978) provides a useful account of the adaptive function of entering a state in which it is possible to transcend existing constructs. Doing so can facilitate the formation of new and more useful heuristics for negotiating the world around us when we have experiences that are incongruent with our current system of representations. The 'loosening of constructs' occurs in a state of being that Kelly likened to 'breathing out'. This state is followed by a period of 'tightening' where new or revised constructs are consolidated to enable the individual to make hypotheses based on stable representations. The ability to transcend existing constructs is therefore a necessity enabling the assimilation of information and increasingly adaptive responses to the environment. Clarke (2010, p. 105) has suggested that in the 'breathing out' stage when construct boundaries break down, transliminality and the accessibility of anomalous experiences increases. It follows that the frequency that an individual is presented with information that is incongruent with existing constructs will determine the frequency that of unboundaried experience. Similarly, the complexity of construct reformation is relative to the extent to which existing constructs encompass 'range of experience' (Kelly, 1977). It is well documented that the etiological pathways of psychosis and IPD both include a range of traumatic early experiences (e.g. Varese et al., 2003). Trauma by its very nature involves an experience or experiences that are difficult to integrate because they do not fit with existing constructs. Consequently, it is likely that those who have experienced a significant and/or repeated traumas are likely to

be in a state of 'breathing out' as attempts are made to build new and more useful heuristics that allow them to make future predictions about their world.

If a higher level of transliminality is representative of the breakdown of schematic boundaries, personal construct theory potentially provides a framework for understanding the relationship between transliminality and IPD. Past or ongoing traumatic events that are associated with the etiology of IPD mean that higher transliminality is an adaptive response to an unpredictable world. It suggests a propensity to break down construct boundaries and build more useful representations in response to a high frequency and intensity of incongruent experiences.

There may also be an additional pathological pathway relating to the resultant instability of constructs caused by being more transliminal. Although this instability has an adaptive function, a possible consequence of being in contexts that consistently challenge existing representations is repeatedly moving between different patterns of seeing and relating to others as constructs are revised and re-revised. This idea can be related to the propensity for those experiencing interpersonal difficulties to rapidly re-appraise relationships resulting in interpersonal instability (Clarkin, Hull & Hurt, 1993).

It is also feasible that entering a less boundaried state more frequently in early life results in an enduring more transliminal disposition that is less context bound - a predisposition to dismantle construct boundaries following new experiences remains constant even when new experiences may conceivably be accounted for by existing constructs. Again this could account for the apparent emotional lability and unstable personality characteristics that are commonly associated with people who experience IPD.

As previously mentioned, DBT has emerged as a first line treatment in the NHS for those with a diagnosis of BPD (NICE, 2009b). DBT interventions are based on the view that interpersonal difficulties arise as a consequence of emotional dysregulation. Central to this model is the view that 'emotional mind' dominates at the cost of the 'reasonable mind'. Ideally, cognitive and affective 'minds' work in conjunction with one another to form a balanced 'wise mind' (Linehan, 1993). This model is analogous with propositional and implicational cognitive subsystems (Teasdale & Barnard, 1993) evident in functional neuroimaging studies. The propositional subsystem is essentially responsible for logical, verbal coding and organising of information while the implicational subsystem codes across sensory modalities and seems to be concerned with affective experience including sensitivity to threats. There is also evidence indicating that in states of heightened arousal the propositional system is inhibited and the implicational dominates. This bears remarkable similarity to the previously described processes of cognitive inhibition that could be seen as facilitating the loosening of constructs. Therefore it may well be the case that Linehan's model is describing the same processes.

In the preceding paragraphs it has been suggested that the emotional lability commonly associated with IPD may in part be explained by transliminality playing a role in cognitive inhibition mechanisms: heightened transliminality is characterised by the dominance of 'emotional mind' (Linehan, 1993) or implicational subsystem (Teasdale and Barnard, 1993) inhibiting the 'wise mind' or propositional cognitive systems. It has also been proposed that transliminality may be playing a role in the 'breathing out' stage in which construct boundaries are loosened. For example, if a highly transliminal individual has substantially revised constructions of relationships from one day to the next, their emotional responses are likely to be experienced as changeable or inconsistent by those in relationships with them. Interestingly, the pattern of IIP-32 subscales predicted by transliminality (scale 1. 'Domineering/controlling'; scale 7. 'Self-sacrificing'; scale 8. 'Intrusive/needy') is the pattern typically associated with a diagnosis of Histrionic Personality Disorder (Horowitz et al., 2000). As previously discussed, the researcher had little interest in contributing the validity of personality disorder

constructs in light of stigmatising effects of these labels in addition to their questionable construct validity and the lack of diagnostic consistency in clinical practice (Tyrer et al., 2007). Nonetheless, the supposed characteristics of histrionic personality disorder are interesting in light of the literature discussed. According to the DSM-V (APA, 2012) it is characterised by:

‘A pervasive pattern of excessive emotionality and attention-seeking, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:’

The list of eight criteria that follow include ‘displays rapidly shifting and shallow expression of emotion’, ‘shows self-dramatization, theatricality, and exaggerated expression of emotion’ and ‘is suggestible, i.e., easily influenced by others or circumstances’. If these criteria are seen as a crude qualitative description of a highly transliminal individual, the qualities listed seem to be congruent with the theories used to explain the relationship between transliminality and IPD. The notion of ‘rapid shifting’ and being ‘easily influenced by others’ could be seen as representing the tendency to revise constructs. The ‘excessive emotionality’ could be viewed as a consequence of limited cognitive inhibition and/or a reflection of how others experience highly transliminal individuals as a result of their hypothesised tendency to frequently revise relational representations.

Object relations theories provide further indication of the function of transliminality in relation to IPD. The view that the self permanently exists in relation with an object (Fairbairn, 1952) has been used as the basis for understanding pathological personality development. In early childhood, objects are defensively split off to ward off persecutory anxieties. ‘Good’ and ‘bad’ objects must be separated for fear that the ‘bad’ will irreversibly contaminate the ‘good’ (Klein, 1946). As the infant develops the painful realisation that split-off part objects are in fact whole, this leads to what Klein described as a depressive position in which ‘good’ and ‘bad’ are integrated. This is an important point in maturation in respect

to achieving autonomy, being able to genuinely empathise with others and view them as separate external entities. When there are limited opportunities for this kind of integration, an overarching tendency to split objects endures into adulthood. This can manifest as a propensity to see the self and others in polarised terms, in line with the traits associated with a diagnosis of BPD (Kernberg, 1975). How might the finding that transliminality relates to interpersonal difficulties be explained within this framework? At difficult times the relationship one has with the whole, the widest network or the mystical, becomes increasingly important (Clarke, 2010). In object relations terms, when all other objects are seen as threatening or persecutory, the relationship with the mystical may be seen as a source of comfort and gratification. Conceivably it may be an object with benign, accepting or acquiescent qualities that provides nourishment at times of distress. As a result, those who experience persecutory or threatening object relations are more transliminal because there is a desire to relate to a soothing mystical object.

### **5.3. Clinical implications**

So far a possible adjunct to the way IPD is understood has been provided. In summary, findings of this study indicate that transliminality predicts IPD and this variance seems to be independent from that which is accounted for by mentalization and attachment hyperactivity. It has been argued that higher transliminality in relation to IPD may be explained by its role in an adaptive mechanism which allows constructs to be revised so that more useful predictions can be made about the environment. The etiological pathways common to psychosis and IPD were seen as a possible explanation as to why high levels of transliminality are found in both of these samples and this has been related to a necessity to revise constructs more frequently in response to traumas. The commonly reported 'symptoms' of personality disorders – emotional lability and interpersonal instability - can therefore be seen as by-products of frequently revising representations of the world. Emotional lability may also be a

consequence of the primacy of emotion over cognition when in a transliminal or 'breathing out' state.

How does this relate to clinical practice? Firstly, it is important to state that the findings themselves primarily point to interesting avenues for further research before definitive theory-practice links can confidently be made (future research possibilities are considered in the next section). Nonetheless, it is useful to consider potential practice implications.

The finding that better mentalization predicts less IPD can be seen as adding to the existing body of evidence supporting the use of mentalization-based psychological interventions for people experiencing interpersonal difficulties. Similarly, the finding that attachment hyperactivity accounted for the most variance in the model adds to the substantial existing evidence-base that implicates early attachment experiences as playing a key role in the aetiology of IPD. This finding can therefore be seen as an endorsement of interventions or preventative measures that promote parenting styles that foster secure attachments. As this aspect of the clinical implications is addressed comprehensively in the attachment literature, the focus of this section will be the findings in relation to transliminality.

Perhaps most significantly, the view that the key features of IPD are a by-product of an essentially adaptive mechanism may serve to challenge the stigmatising discourses related to personality disorders. In contrast to psychosis, where there is a growing literature relating to psychosis as a positive, transformational experience (Knight, White & Hayward, 2003; Miller, O'Connor & Di Pasquale, 1993; Richards, 2008;) there is virtually no equivalent within IPD or personality disorder discourses. The notion of fluidity of constructs, creativity and transformation, are the key tenets of the positive connotations described in accounts of psychosis and it may be the case that those with a personality disorder diagnosis may also share some of these qualities or identify with these

experiences. That is not to minimise the distress that commonly results from experiencing IPD or indeed psychosis, but there is clearly an absence in the IPD literature in this respect to possible benefits. More generally the adaptive and functional mechanisms implicated in this thesis challenge stigmatising discourses by providing a richer possible explanation as to why interpersonal instability and emotional lability occur.

The findings also lend support to the potential value of therapeutic approaches that attempt to develop the ability to regulate emotions such as DBT. This can be seen as the development of the previously cited cognitive inhibition systems that moderate the tendency to be overwhelmed by psychological material. Perhaps an additional emphasis in psychological therapies should be recognising when transliminal states have been entered. There may also be a distinction here between states which are primarily characterised by emotional arousal and states that are characterised by a lack of logical or verbal coding, the former functioning as part of a threat system and the latter reflecting a state of construct reorganisation. There may also be shades of grey between these states. The main point being that instead of simply dismissing states that seem to lack a cognitive or meta-cognitive functions as pathological (e.g. inhibiting the ability to mentalize, logical reasoning, etc), they may represent important psychological functions that are a necessary response to the environment. While cognitive inhibition systems or emotional regulation are important aspects of being able to cement or delineate new constructs after a period of 'breathing out', perhaps in therapeutic interventions it can be useful to explore revisions to representations. This approach may help people develop representations that are consistent over time by laying down verbal and semantic coding through therapeutic conversations. Through building an awareness of representations or constructs (particularly for relationships to attachment figures) that have changed over time this may elucidate a new narrative about the problems associated with rapidly changing constructs. As such it may motivate the individual to develop more evidenced, detailed and stable constructs that allow them to make more consistent predictions about the world and other peoples' behaviour.

As previously stated, the findings of this study in their current form do not neatly point towards specific developments in clinical practice and the ideas that have been discussed in this section have been based on the assumption that explanations of the relationship between transliminality and IPD offered in this thesis are accurate. Clearly more must be understood about the role of transliminality and its role in adaptive and psychopathological mechanisms in IPD before developing therapeutic practices.

#### **5.4. Further research**

In order to test the assertions put forward in the thesis as to the relationship between transliminality and IPD, there are a range of potential avenues for further research.

One key area worthy of investigation is exploring the extent to which transliminality is changeable over time or context bound. Central to the proposition that transliminality plays a role in the breathing out stage of construct revisions is that this is a response to trauma or adversity. Consequently, to test this hypothesis it would be useful to investigate the relationship between traumatic experiences that challenge pre-existing representations and levels of transliminality that follow these experiences. If the explanation presented is correct, relatively high levels of transliminality would be expected during the period of construct revision followed by relatively lower levels of transliminality once these experiences had been assimilated.

The personal construct theory account of transliminality was used as a possible framework for understanding Kernberg's continuum. As yet, there is not a clear picture of how the healthy, neurotic, borderline and psychotic points on this continuum relate in terms of levels of transliminality. It is apparent that high



transliminality predicts IPD (equated to the borderline point) and relates transliminality also to psychosis while low transliminality predicts low IPD (potentially equating to the 'healthy' point). However, the space between these points from a transliminal perspective has not been fully explored and a more comprehensive analysis of the how transliminality relates to the points on this continuum would give some indication of the validity of the hypothesised common mechanisms linking IPD and psychosis.

It would also be useful to explore the relationship between transliminality and emotional arousal over time, particularly in relation to ego threats and attachment hyperactivity. As previously stated, the data on attachment hyperactivity and transliminality did not control for the immediate context participants were in so it is possible that the lack of a relationship between these variables was a consequence of a relationship occurring when anxieties or ego threats are live.

If there is evidence to indicate that transliminality is context bound, it would also be useful to explore the possibility of a distinction between emotional arousal and transliminal states and neuroimaging studies could prove useful here. Conversely, if transliminality is found to be a more stable trait, it would be interesting to investigate when differences begin to emerge and in what contexts. Additionally, it would be interesting to examine whether transliminality changes pre and post psychological interventions for different therapeutic modalities and how transliminality corresponds with different stages and aspects of the therapeutic process. One could hypothesise that MBT and DBT are effective because they limit transliminal states by consistently focusing on what is conscious or near conscious and use techniques to aid the regulation of emotion. Conversely, psychoanalytic approaches elicit unintegrated material from the unconscious and potentially increase the likelihood of entering transliminal states. Examining the interaction between client transliminality and the efficacy of different approaches may also lead to useful indications as to the appropriateness of different models of therapy for different clients.

In short there are numerous ways in which the hypotheses generated from the findings of this study can be investigated. There are also a range of possibilities for the further use of the transliminality construct to investigate the active components of effective psychotherapies.

### **5.5. Methodological limitations**

In this section, further attention is given to the limitations of this study that have already been highlighted as well as giving consideration to other methodological issues that have arisen through the course of this research project.

The small clinical sample and the resultant limitations of the analysis of this dataset and limited generalisability of the findings has already been noted. However as previously discussed, the high level of IPD in the non-clinical sample (which was comparable to the clinical group) in some ways negates the fact that the main findings come from a non-clinical sample. Of course, using a clinical sample would enhance generalisability, particularly if theoretical and practice developments are sought in the area of clinical psychology. Therefore, this should be prioritised in future replications of this research or studies investigating similar phenomena. It is also important to bear in mind that this was the first study of transliminality with the distinct aim of developing theory and practice in clinical psychology. It is therefore justifiable to primarily explore this construct in relation to pathological mechanisms using a non-clinical sample given that this is essentially a new literature.

A further limitation was the use of one measure of mentalization. There is a literature detailing how various measures of mentalization should be used in conjunction to obtain a complete picture of its various subtypes of mentalizing (emotional, cognitive, self and other) (Newbury-Helps, 2011). This was considered in the study design however it was considered to be too great a

burden on unpaid and uncompensated participants to complete a battery of mentalization measures. Also contributing to this decision was the fact that transliminality was the key measure of interest and the RME, as a measure of mentalization that assesses three of the key domains (emotional and cognitive mentalization in relation to the mental states of others), was an adequate measure for the purpose of testing a series of exploratory hypotheses. Indeed the finding that mentalization predicted IPD, in line with the literature can be seen as validation of the use of this measure alone. Another potential limitation to assessing mentalization using this measure emerged when the results were being analysed. The potential for emotional arousal to inhibit mentalizing abilities (Fonagy & Bateman, 2006) has not been translated into ecologically valid mentalization measures. As a consequence assessing mentalization ability outside of this context may not reflect true deficits. Nonetheless, measuring mentalization with the methods used in this thesis provides some indication of optimum capacity, assuming that the questionnaires were not completed when participants were experiencing emotional arousal. Nonetheless, future research investigating mentalization should give consideration to this potentially confounding variable.

Following the data collection phase, an erratum clarification paper detailing how the RTS should be administered was found (). This paper was published in response to an apparent lack of clarity in relation to the administration of the RTS. In this paper it states that all 29 items of the original transliminality scale but only the 17-items of RTS are scored. It was argued that administering all 29 of items to preserve context and limit the potential for differential item functioning (DIF) – when respondents from different groups (e.g. gender or age) with the same latent trait have a different probability of giving a particular response to a questionnaire item. In this study, participants only responded to the 17-items identified in the RTS as a result of a lack of clarity in the original paper. Consequently, it is necessary to note that in this study the RTS was not presented in line with these recommendations. It is not clear why Houran et al. (2003) see this as a potential reason for increasing the possibility of DIF. However, this was investigated using a series of hierarchical logistic regression

models with the questionnaire item as the dependent variable with total RTS score in the first block of predictors and demographic characteristics in the second. The results did reveal differential item functioning for gender on two items, education level on three items and for age on nine items. There is no obvious explanation for this bias based on the questionnaires being administered out of context but it does highlight the potential for this type of bias to exist within the RTS regardless of how it is administered. It also highlights the importance of controlling for demographic characteristics by including them in regression models.

## **5.6. Conclusion**

This investigation demonstrated that an increased 'tendency for psychological material (trans) thresholds (limines) into or out of consciousness' (Thalbourne and Houran, 2000) independently predicted increased IPD. As there have been few attempts to quantitatively examine transliminality or other constructions of unconscious processes in relation to existing theories of psychopathology, a speculative interpretation of this finding has been constructed drawing on a range of literatures. The proposition that IPD may result from an increased tendency to revise constructs, a process that is facilitated by heightened transliminality, provides a theoretically congruent adjunct to existing theories of IPD that focus on cognitive inhibition and emotional regulation. Revising representations in response to new information can be viewed as a necessary process that helps us to effectively negotiate changing environments. However, a tendency to frequently revise constructs, possibly as a consequence of past or ongoing traumatic experiences, may in part lead to unstable relationships and emotional lability. Whilst further research is needed to validate this view, the findings indicate that therapeutic practice for people experiencing IPD may benefit from attending to increasing awareness of construct revisions and the potential usefulness of developing more stable constructs.

## REFERENCES

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th edition)*. Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2012). *Diagnostic and statistical manual of mental disorders (5th edition)*. Washington, DC: American Psychiatric Association.

Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. *Psychology of learning and motivation*, 2, 89-195.

Aviram, R.B., Brodsky, B.S., & Stanley, B. (2006). Borderline personality disorder, stigma, and treatment implications. *Harvard Review of Psychiatry*, 14(5), 249-56.

Bargh, J.A., & Morsella, E. (2008). The unconscious mind. *Perspectives on Psychological Science*, 3, 73-79.

Barkham, M. & Hardy, G.E. (1996). The IIP-32: A short version of the Inventory of Interpersonal Problems. *British Journal of Clinical Psychology*, 35, 21-35.

Barkham, M., Hardy, G. E., & Startup, M. (1994). The structure, validity and clinical relevance of the Inventory of Interpersonal Problems. *British Journal of Medical Psychology*, 67(2), 171-185.

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y. & Plumb, I. (2001). The 'Reading the Mind in the Eyes' Test, revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology and Psychiatry*, 42, 241–251.

Bateman, A. & Fonagy, P. (2000) Effectiveness of psychotherapeutic treatment of personality disorder. *British Journal of Psychiatry*, 177, 138–143.

Bateman, A.W. (1998). Thick- and Thin-Skinned Organisations and Enactment in Borderline and Narcissistic Disorders. *International Journal of Psycho-Analysis*, 79, 13-25.

Bechara, A., Tranel, D., Damasio, H., & Damasio, A. (1996). Failure to respond autonomically to anticipated future outcomes following damage to prefrontal cortex. *Cerebral cortex*, 6, 215-225.

Bechara, A., Tranel, D., Damasio, H., Adolphs, R., Rockland, C., & Damasio, A. (1995). Double dissociation of conditioning and declarative knowledge relative to the amygdala and hippocampus in humans. *Science*, 29, 1115-1118.

Beck, J. S. (1995). Cognitive therapy: Basics and beyond. *New York: Guilford Press*.

Black, D.W., Blum, N., Pfohl, B., Blum, A., McCormick, B, Allen, J., North, C.S., Phillips, K.A., Robins, C, Siever, L., Silk, K.R., Williams, J.B. & Zimmerman, M. (2011). Attitudes toward borderline personality disorder: a survey of 706 mental health clinicians, *CNS Spectrums*, 16(3), 67-74.

Bodner, E., Cohen-Fridel, S., and Iancu, I. (2011). Staff attitudes toward patients with borderline personality disorder. *Comprehensive Psychiatry*, 52 (5), 548–555.

Bowers, J.S. & Schacter, D.L. (1990). Implicit memory and test awareness. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 16, 404-416.

Bowlby, J. (1969), Attachment and loss, Vol. 1: Attachment. *New York: Basic Books*.

Bowlby, J. (1973). Attachment and loss, Vol. 2: Separation. *New York: Basic Books*.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). *Self-report measurement of adult attachment: An integrative overview* in J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Choi-Kain, L. W., & Gunderson, J. G. (2008). Mentalization: Ontogeny, assessment, and application in the treatment of borderline personality disorder. *American Journal of Psychiatry*, 165, 1127–1135.

Clarke, I. (2010). Psychosis and spirituality: Consolidating a New Paradigm. *London: Whurr*.

Clarkin, J.F., Hull, J.W., Hurt, S.W. (1993). Factor structure of borderline personality disorder criteria. *Journal of Personality Disorders*, 7, 137–143.

Cohen, J. (1988). Statistical power analysis for the behavioural sciences (2<sup>nd</sup> edition). *Hillsdale, New Jersey: Erlbaum.*

Cook, D.R. (1977). Detection of Influential Observations in Linear Regression. *Technometrics*, 19 (1), 15–18.

Costa, P.T. & McCrae, M.R.R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13, 653–665.

Dehaene, S., Changeux, J.P, Naccache, L., Sackur, J. and Sergent, C. (2006) Conscious, preconscious, and subliminal processing: a testable taxonomy. *Trends in Cognitive Sciences*, 10(5), 204-211.

Denny, B. T., Kober, H., Wager, T. D., & Ochsner, K. N. (2012). A meta-analysis of functional neuroimaging studies of self- and other judgments reveals a spatial gradient for mentalizing in medial prefrontal cortex. *Journal of Cognitive Neuroscience*, 24, 1742–1752.

Derryberry, D., & Rothbart, M. K. (1997). Reactive and effortful processes in the organization of temperament. *Development and Psychopathology*, 9, 633-652.

Descartes, R. (1644/2004). Principia philosophiae [Principles of philosophy]. *J. Cottingham, R. Stoothoff, D. Murdoch, & A. Kenny (Eds. and Trans.), The philosophical writings of Descartes*, 1. New York: Random House.

Domes, G., Heinrichs, M., Michel, A., Berger, C., & Herpertz, S.C. (2007). Oxytocin improves ‘mindreading’ in humans. *Biological Psychiatry*, 61(6), 731–733.



Domes, G., Winter, B., Schnell, K., Vohs, K., Fast, K., & Herpertz, S.C. (2006). The influence of emotions on inhibitory functioning in borderline personality disorder. *Psychological Medicine*, 36, 1163–1172.

Egleston, B.L., Miller, S.M., & Meropol, N.J. (2011). The impact of misclassification due to survey response fatigue on estimation and identifiability of treatment effects. *Statistics in Medicine*. 30(3), 3560-72.

Fairbairn, W.R.D. (1952). *Psychoanalytic Studies of the Personality*. London: Routledge and Kegan Paul.

Farthing, G. (1992). *The Psychology of Consciousness*. New Jersey: Prentice Hall.

Fechner, G. T. (1860). *Elemente der Psychophysik*. Leipzig: Breitkopf & Härtel.

Fernández-Abascal, E.G., Cabello, R., Fernández-Berrocal, P. & Baron-Cohen, S. (2013). Test–retest reliability of the “Reading the Mind in the Eyes” test: a one-year follow-up study. *Molecular Autism*, 4, 33.

Fertuck, E.A., Jekal, A., Song I., Wyman, B., Morris, M.C., Wilson, S.T., Brodsky, B.S. & Stanley, B. Enhanced ‘Reading the Mind in the Eyes’ in borderline personality disorder compared to healthy controls. *Psychological Medicine*, 39, 1979-88.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th edition). Los Angeles, CA: Sage Editions.

Fonagy, P. & Bateman, A. (2004). Mentalization-Based Treatment of BPD. *Journal of Personality Disorders*, 18(1), 36-51.

Fonagy, P. & Bateman, A. (2006). Mechanism of change in mentalization based treatment of borderline personality disorder. *Journal of clinical Psychology*, 62, 411-430.

Fonagy, P., Bateman, A., & Luyten, P. (2012). *Introduction and overview* in A. W. Bateman & P. Fonagy (Eds.), *Handbook of Mentalizing in mental health practice* (pp. 3-42). Washington, DC: American Psychiatric Press.

Fonagy, P., Steele, H., Moran, G., Steele, M., & Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*, 13, 200–217.

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350-365.

Franzen, N., Hagenhoff, M., Baer, N., Schmidt, A., Mier, D., Sammer, G., Gallhofer, B., Kirsch, P. & Lis, S. (2010). Superior 'theory of mind' in borderline personality disorder: An analysis of interaction behavior in a virtual trust game. *Psychiatry Research*, 187(1), 224-233.

Freud S (1919), A Child is Being Beaten XVII (2nd edition). *London: Hogarth Press*.

Freud, S. (1961). *An autobiographical study* in Strachey, J. (Ed.), *Standard edition of the complete psychological works of Sigmund Freud* (Vol. 20, pp. 7–74). The Unconscious Mind. London: Hogarth Press.

Friman, P.C., Allen, K.D., Kerwin, M.L.E. & Larzelere, R. (1993). Changes in modern psychology: A citation analysis of the Kuhnian displacement thesis. *American Psychologist*, 48, 658-664.

George, C., Kaplan, N., & Main, M. (1985). Adult attachment interview (AAI). *Unpublished manuscript, University of California at Berkeley*.

Goldberg, L. R. (1980, May). Some ruminations about the structure of individual differences: Developing a common lexicon for the major characteristics of human personality. Symposium presentation at the meeting of the Western Psychological Association, Honolulu, HI.

Goldberg, L.R. (1982). *From Ace to Zombie: Some explorations in the language of personality* in C.D. Spielberger & J.N. Butcher (Eds.), *Advances in personality assessment* (Vol. 1, pp. 20-28). Hillsdale, NJ: Erlbaum.

Golynkina, K., & Ryle, A. (1999). The identification and characteristics of the partially dissociated states of patients with borderline personality disorder. *British Journal of Medical Psychology*, 72, 429–435.

Gunderson, J.G. (2001). *Borderline personality disorder: A clinical guide*. Washington, DC: American Psychiatric Association.

Gunderson, J. G., & Kolb, J. E. (1978). Discriminating features of borderline patients. *American Journal of Psychiatry*, 135, 792–796.

Hambleton, R., Swaminathan, H., Rogers, H. (1991). *Fundamentals of Item Response Theory*. Newbury Park, California: Sage Publications, Inc.

Hatcher, R.L., & Rogers, D.T. (2009). Development and validation of a measure of interpersonal strengths: The Inventory of Interpersonal Strengths. *Psychological Assessment*, 21, 544-569.

Herbart, J.F. (1896) *translated by Eckhoff, W.J. ABC of Sense Perception and minor pedagogical works*. New York: Random House.

Hofstee, W. K. B., de Raad, B., & Goldberg, L. R. (1992). Integration of the big five and circumplex approaches to trait structure. *Journal of Personality and Social Psychology*, 63, 146-163.

Horowitz, L.M., Alden, L.E., Wiggins, J.S., & Pincus, A.L. (2000). *Inventory of Interpersonal Problems Manual*. Odessa, FL: The Psychological Corporation.

Horowitz, L.M., Rosenberg, S.E., Baer, B.A., Ureno, G. & Villasenor, V.S. (1988). Inventory of Interpersonal Problems: Psychometric properties and clinical applications. *Journal of Consulting and Clinical Psychology*, 56, 885-892.

Horowitz, L. M., Rosenberg, S. E., & Bartholomew, K. (1993). Interpersonal problems, attachment styles, and outcome in brief dynamic psychotherapy. *Journal of Consulting and Clinical Psychology*, 61, 549-560.

Houran, J., Thalbourne, M. A., & Lange, R. (2003). Methodological note: Erratum and comment on the use of the Revised Transliminality Scale. *Consciousness and Cognition*, 12, 140–144.

James, W. (1982). *The varieties of religious experience*. Harmondsworth, Middlesex, England: Penguin. (Original published in 1902).

Jung, C.G. (1956). *Symbols of Transformation in Collected Works, Volume 5*. Princeton, N.J.: Princeton University Press.

Kelly, G.A. (1955). *The Psychology of Personal Constructs*. New York: Norton.

Kelly, G.A. (1977). *Confusion and the Clock*. in Fransella, F. (eds.) *Personal Construct Psychology*. New York: Norton.

Kernberg, O. (1975). Borderline conditions and pathological narcissism. *Northvale, NJ: Jason Aronson*.

Kim, H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 38(1), 52-54.

Klein, M. (1946). *Notes on some schizoid mechanisms in Envy and gratitude and other works 1946-1963*. London: Hogarth Press.

Knight, M.T., Wykes, T. & Hayward, P. (2003). 'People don't understand': An investigation of stigma in schizophrenia using Interpretative Phenomenological Analysis (IPA). *Journal of Mental Health*, 12, 209–222.

Knight, R. P. (1953). Borderline states. *Bulletin of the Menninger Clinic*, 17, 1–12.

Korfine, L. & Hooley, J. M. (2000). Directed forgetting of emotional stimuli in borderline personality disorder. *Journal of Abnormal Psychology*, 109, 214–221.

Krosnick, J. (1991). Response Strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5 (3): 213–236.

Laing, R.D. (1967). *The Politics of Experience and The Bird of Paradise*. London: Penguin.

Lange, R., Thalbourne, M.A., Houran, J., & Storm, L. (2000). The Revised Transliminality Scale: Reliability and Validity Data From a Rasch Top-Down Purification Procedure. *Consciousness and Cognition*, 9, 591–617.

Leary, T. (1957). *Interpersonal diagnosis of personality*. New York: Ronald Press.

Levy, K.N., Beeney, J.E. & Temes, C.M. (2011). Attachment and its vicissitudes in borderline personality disorder. *Current Psychiatry Reports*, 13, 50–9.

Linehan, M. (1993). *Skills Training Manual for Treating Borderline Personality Disorder*. New York: Guilford Press.

Locke, K.D. (2000). Circumplex Scales of Interpersonal Values: Reliability, validity, and applicability to interpersonal problems and personality disorders. *Journal of Personality Assessment*, 75, 249–267.

Locke, K.D. (2006). *Interpersonal circumplex measures* in S. Strack (Ed.), *Differentiating normal and abnormal personality* (2nd Ed., p. 383–400). New York: Springer.

Lord, F. M. (1980). *Applications of item response theory to practical testing problems*. Hillsdale, NJ: Edbaum.

Ludlow, L.H., & Haley, S.M. (1995). Rasch model logits: Interpretation, use, and transformation. *Educational and Psychological Measurement*, 55, 967–975.

Lutz, A., Lachaux, J.P., Martinerie, J. & Varela, F. J. (2002). Guiding the study of brain dynamics using first-person data. *Proceedings of the National Academy of Science*, 99, 1586-1591.

Luyten, P., Fonagy, P., Lowyck, B., & Vermote, R. (2012). *The assessment of mentalization* in A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (pp. 43-65). Washington, DC: American Psychiatric Association.

Mancia, M. (1999). Psychoanalysis and the neurosciences: A topical debate on dreams. *International Journal of Psychoanalysis*, 80, 1205–1213.

Mayberg H.S, Liotti, M., Brannan, S.K., McGinnis, S., Mahurin, R.K. and Jerabek, P.A. (1999). Reciprocal limbic-cortical function and negative mood: Converging

PET findings in depression and normal sadness. *American Journal of Psychiatry*, 156, 675– 682.

McEvoy, P. M., Burgess, A. C., Page, P., Nathan, & Fursland. A. (2013). Interpersonal problems across anxiety, depression, and eating disorders: A transdiagnostic examination. *British Journal of Clinical Psychology*, 52, 129-147.

McCreery, C. & Claridge, G. (1996). A study of hallucination in normal subjects. 1. Self-report. *Personality and Individual Differences*, 21, 739–47.

McLean, L.M. & Gallop, R. (2003). Implications of childhood sexual abuse for adult borderline personality disorder and complex posttraumatic stress disorder. *American Journal of Psychiatry*, 160, 369–371.

Meehan, K. B., Levy, K. N., Reynoso, J. S., Hill, L. L., Clarkin, J. F. (2009). Measuring reflective function with a multidimensional rating scale: Comparison with scoring reflective function on the AAI. *Journal of the American Psychoanalytic Association*. 57, 208-213.

Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist*, 50, 741–749.

Mikulincer, M., & Florian, V. (1998). *The relationship between adult attachment styles and emotional and cognitive reactions to stressful events* in J. Simpson & S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 143–165). New York: Guilford Press.



Miller, L.J., O'Connor, E. & DePasquale, T. (1993). Patients' attitudes to hallucinations. *American Journal of Psychiatry*, 150, 584–8.

Milner, B., Corkin, S., & Teuber, H.L. (1968). Further analysis of the hippocampal amnesic syndrome: Fourteen year follow-up study of H.M. *Neuropsychologia*, 6, 215-234.

Mograbi, D.C., Brown, R.G., Salas C.B. & Morris, R.G (2012). Emotional reactivity and awareness of task performance in Alzheimer's disease. *Neuropsychologia*, 50, 2075–2084.

National Institute for Health and Clinical Excellence (2009a). *Depression in adults (update): draft full guideline for consultation*. London (HMSO).

National Institute for Health and Clinical Excellence. (2009b). *NICE Clinical Guideline 78: Borderline personality disorder: treatment and management*. London (HMSO).

Nehls, N. (1998) Borderline personality disorder: gender stereotypes, stigma, and limited system of care. *Issues in Mental Health Nursing*, 19(2), 97-112.

Newbury-Helps, J. (2011). *Are difficulties in mentalizing associated with severity of Antisocial Personality Disorder?* Unpublished doctoral thesis, University College London, London.

Newell, A., & Simon, H. A. (1972) Human problem solving. *Englewood Cliffs, NJ: Prentice-Hall*.

Peabody, D. & Goldberg, L.R. (1989). Some determinants of factor structures from personality-trait descriptors. *Journal of Personality and Social Psychology*, 57(3), 552–567.

Rapley, M., Moncrieff, J., & Dillon, J. (Eds.) (2011). *De-medicalizing misery: Psychiatry, psychology and the human condition*. Houndsmills, Basingstoke Hampshire, England: Palgrave Macmillan.

Rasch, G. (1960). Probabilistic models for some intelligence and attainment tests. *Chicago, IL: MESA Press*.

Richards, S.L. (2008). Positive aspects of the experience of psychosis: An interpretative phenomenological analysis. *Unpublished PhD thesis, University of Leeds*.

Riem, M.M.E., Bakermans-Kranenburg, M.J., van Ijzendoorn, M.H., Out, D., Rombouts, S.A.R.B. (2012). Attachment in the brain: Adult attachment representations predict amygdala and behavioural responses to infant crying. *Attachment & Human Development*, 14, 533–551.

Roisman, G. I., Holland, A., Fortuna, K., Fraley, R. C., Clausell, E., & Clarke, A. (2007). The Adult Attachment Interview and self-reports of attachment style: an empirical rapprochement. *Journal of personality and social psychology*, 92(4), 678-683.

Rose, D. (2006). *Consciousness: philosophical, psychological and neural theories*. New York: Oxford University Press.

Rosenfeld, H. (1987). Afterthought: changing theories and changing techniques in psychoanalysis. In *Impasse and Interpretation*. London and New York: Tavistock.

Roustang, F. (1984). On the epistemology of psychoanalysis. *Modern Language Notes*, 99, 928-940.

Ryle, G. (1984). The concept of mind (1949). London: Hutchinson.

Sampson, M., McCubbin, R., & Tyrer, P. (Eds.). (2006). Personality disorder and community mental health teams: a practitioner's guide. London: John Wiley & Sons.

Samuel, D.B. & Widiger, T.A. (2008). A meta-analytic review of the relationships between the five-factor model and DSM-IV-TR personality disorders: A facet level analysis. *Clinical Psychology Review*, 28(8), 1326–1342.

Schacter, D. L. (1992). Priming and multiple memory systems: Perceptual mechanisms of implicit memory. *Journal of Cognitive Neuroscience*, 4(3), 244-256.

Scott, L.N., Levy, K. & Pincus, A.L (2009). Adult attachment, personality traits, and borderline personality disorder features in young adults. *Journal of Personality Disorders*, 23(3), 258–290.

Searle, J. (2005). *Consciousness* in Honderich T. *The Oxford companion to philosophy*. New York: Oxford University Press.

Semerari, A., Carcione, A., Dimaggio, G., Nicolo, G., Pedone, R., Procacci, M. (2005). Metarepresentative functions in Borderline Personality Disorder. *Journal of Personality Disorders*, 19(6), 690-710.

Shaver, P.R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment and Human Development*, 4, 133–16.

Sibley, C.G., & Liu, J.H. (2004). Short-term temporal stability and factor structure of the revised experiences in close relationships (ECR-R) measure of adult attachment. *Personality and Individual Differences*, 36, 969-975.

Siminski, P.L. (2008) Order effects in batteries of questions. *Quality and Quantity*, 42(4), 477-490.

Simon, H. A. (1956). Rational Choice and the Structure of the Environment. *Psychological Review*, 63(2), 129–138.

Skodol, A. E., Gunderson, J., Pfohl, B., Widiger, T. A., Livesley, W. J., & Siever, L. (2002). The borderline diagnosis I: Psychopathology, comorbidity, and personality structures. *Biological Psychiatry*, 51, 936–950.

Soldz, S., Budrnan, S., Demby, A. & Merry, J. (1995). A short form of the Inventory of Interpersonal Problems Circumplex Scales. *Assessment*, 2, 53-63.

Staebler, K., Hellbing, E., Rosenbach, C. & Renneberg, B. (2010). Rejection sensitivity and borderline personality disorder. *Clinical Psychological and Psychotherapy*, 18(4), 275-283.

Stern, A. (1938). Psychoanalytic investigation and therapy in the borderline group of neuroses. *Psychoanalytic Quarterly*, 7, 467– 489.

Tabachnick, B.G. & Fidell L.S (2006). Using multivariate statistics. 5th edition. *Boston, MA: Allyn & Bacon.*

Teasdale, J. D., & Barnard, P. J. (1993). Affect, cognition, and change. *Hillsdale, New Jersey: Erlbaum.*

Thalbourne, M. A. (1991). The psychology of mystical experience. *Exceptional Human Experience*, 9, 168–186.

Thalbourne, M.A. (2000). Transliminality and creativity. *Journal of Creative Behavior*, 34, 193–202.

Thalbourne, M.A., Bartemucci, L., Delin, P.S., Fox, B. & Nofi, O. (1997). Transliminality: Its Nature and Correlates. *Journal of the American Society for Psychical Research*, 91, 305-332.

Thalbourne, M. A., & Delin, P. S. (1994). A common thread underlying belief in the paranormal, creative personality, mystical experience and psychopathology. *Journal of Parapsychology*, 58, 3–38.

Thalbourne, M. A., Houran, J., Alias, A. G., & Brugger, P. (2001). Transliminality, brain function, and synaesthesia. *Journal of Nervous and Mental Disease*, 189, 190-192.

Thalbourne, M. A., Keogh, E., & Witt, G. (2005). Transliminality and the Oxford-Liverpool Inventory of Feelings and Experiences. *Psychological Reports*, 96, 579-585.

Thalbourne, M.A. & Maltby, J. (2008). Transliminality, thin boundaries, Unusual experiences, and temporal lobe lability. *Personality and Individual Differences*, 44, 1617–1623.

Tupes, E.C., & Christal, R.E. (1961). *Recurrent Personality Factors Based on Trait Ratings*. Technical Report ASD-TR-61-97, Lackland Air Force Base, TX: Personnel Laboratory, Air Force Systems Command.

Tyrer, P. J. (1996). Establishing the severity of personality disorder. *American Journal of Psychiatry*, 153, 1593–1597.

Tyrer, P., Coombs, N., Ibrahimi, F., Mathilakath, A., Bajaj, P., Ranger, M., Rao, B. & Din, R. (2007). Critical developments in the assessment of personality disorder. *British Journal of Psychiatry (Supplement)*, 49, 51–59.

Usher, F. L., & Burt, F. P. (1909). Thought transference. (Some experiments in long distance thought transference.) *Annals of Psychical Science*, 8, 561–600.

van IJzendoorn, M.H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117, 387-403.

Varese, F., Smeets, F., Drukker, M., Lieveise, R., Lataster, T., Viechtbauer, W., Read, J., van Os, J. & Bentall R.P. (2012). Childhood adversities increase the risk of psychosis: a meta-analysis of patient-control, prospective- and cross-sectional cohort studies. *Schizophrenia Bulletin*, 38, 661–671.

Warwick, S. (2007). *Exploring the Tranliminal: Qualitative Studies* in Clarke, I. (2010). *Psychosis and spirituality: Consolidating a New Paradigm*. London: Whurr.

Wei, M., Vogel, D. L., Ku, T., & Zakalik, R. A. (2005). Adult attachment, affect regulation, negative mood, and interpersonal problems: The mediating role of emotional reactivity and emotional cutoff. *Journal of Counseling Psychology*, 52, 14–24.

Westen., D. (1999). The scientific status of unconscious processes: is Freud really dead? *Journal of the American Psychoanalytic Association*, 47, 1061-1106.

Wiggins, J. S. (2003). *Paradigms of personality assessment*. New York, NY: Guilford Press.

Wiggins, J. S., & Broughton, R. (1991). A geometric taxonomy of personality scales. *European Journal of Personality*, 5, 343–365.

Wilson, T. (1996). *The validity and consequences of verbal reports about attitudes* in N. Schwarz and S. Sudman (Eds.), *Answering questions: Methodology for determining cognitive and communicative responses in survey research* (p. 91-114). San Francisco: Jossey-Bass.

Wittgenstein, L. (1953). *Philosophical investigations*. Philosophische Untersuchungen. Oxford, England: Macmillan.

Wright, B. D. (1999). *Fundamental measurement for psychology* in S. E. Embretson & S. L. Hershberger (Eds.). *The new rules of measurement*, pp. 65–104. Mahwah, NJ: Erlbaum.

Wundt, W. (1874), *Grundzüge der physiologischen Psychologie* (Principles of Physiological Psychology). Engelmann: Leipzig.

Zajonc, R. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, 35, 151-175.

Zanarini, M. C., Frankenburg, F. R., & Hennen, J. (2003). The longitudinal course of borderline psychopathology: 6-year prospective follow-up of the phenomenology of borderline personality disorder. *American Journal of Psychiatry*, 160, 274 -283.



## APPENDICES

### Appendix A. Invitation to participate letter (clinical sample)



Dear Sir/Madam,

**Re: Invitation to participate in a research project**

[trust name] NHS Foundation trust and the University of East London are carrying out a research project titled:

**‘How do unconscious processes effect how people relate to one another?’**

As a part of this research project we are asking service users who have been offered an assessment for psychological therapy to complete four questionnaires. Further information about this project and what participation involves can be found on the Information Sheet that should be attached to this letter. If you read the information sheet and you are willing to participate, the questionnaires have been enclosed for you to complete and bring to your assessment appointment.

Participation is completely voluntary and if you decide not to participate you do not have to provide a reason and this does not have any implications for the care you receive. You can also withdraw from the research at any time.

Thank you for taking the time to read this and the research information sheet.

Yours sincerely,

Stephen Rock

Chief Investigator

University of East London

Email: [u1138198@uel.ac.uk](mailto:u1138198@uel.ac.uk)

## **Appendix B. Debriefing sheet**

### **Participant debriefing sheet**

**Research title: How do unconscious processes effect how people relate to one another?**

Thank you for taking the time to participate in this research project. As previously mentioned, if you have any queries or questions about any aspect of the research you can contact the Chief Investigator, Stephen Rock (E-mail Address: [u1138198@uel.ac.uk](mailto:u1138198@uel.ac.uk)).

If participating has been distressing for you in way, please speak to the person conducting your assessment who will be able to offer you some guidance and support.

You can also speak to the NHS Service Experience Team [contact details] who are there to receive feedback from Service Users including complaints. Liaison Officers in this team are experts in the management of complaints and so if you do have a complaint they will help to ensure it is handled carefully and with empathy.

## Appendix C. Invitation to participate (non-clinical sample)



Dear Sir/Madam,

**Re: Invitation to participate in a research project**

University of East London are carrying out a research project titled:

**‘How do unconscious processes effect how people relate to one another?’**

As a part of this research project we are asking adults (aged over 18 years-old) complete four questionnaires. Further information about this project and what participation involves can be found at the website [www. \[to be confirmed\]](#). If you are willing to participate, the link will take you through a consent form followed by the questionnaires. They are in a multiple choice format and will take around 20 minutes to complete.

Participation is completely voluntary and you can also withdraw from the research at any time.

Thank you for taking the time to read this.

Yours sincerely,

Stephen Rock

Chief Investigator

University of East London

Email: [u1138198@uel.ac.uk](mailto:u1138198@uel.ac.uk)

Dr James Walsh

Research Supervisor and Senior Lecturer

University of East London

[j.j.walsh@uel.ac.uk](mailto:j.j.walsh@uel.ac.uk)

## Appendix D. NHS ethical approval confirmation letter



24 October 2013

Mr Stephen Rock  
Trainee Clinical Psychologist  
Camden and Islington NHS Foundation Trust  
Clinical Psychology Department  
University of East London  
Stratford Campus, Water Lane  
E15 4LZ

Dear Mr Rock

**Study title:** A study of the relationship between transliminality and interpersonal difficulties: Is the severity of presenting difficulties in a clinical population related to sensitivity to unconscious psychological material?  
**REC reference:** 13/LO/1421  
**IRAS project ID:** 130949

Thank you for your letter of 17 October 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Co-ordinator [redacted]

### Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

### Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

### **Conditions of the favourable opinion**

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

*Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.*

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

*Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.*

*For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.*

*Sponsors are not required to notify the Committee of approvals from host organisations*

### **Registration of Clinical Trials**

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact [REDACTED] ([\[REDACTED\]@hpa.gov.uk](mailto:[REDACTED]@hpa.gov.uk)), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

**It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).**

### **Approved documents**

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering Letter		06 August 2013
Evidence of insurance or indemnity		22 August 2013
Investigator CV		17 June 2013
Letter of invitation to participant	1.2	
Other: Summary CV for supervisor		17 June 2013
Other: Summary CV for Student		17 June 2013
Other: Chief Investigator's NHS Contract		06 August 2013
Other: 2nd Academic Supervisor CV		17 June 2013
Participant Consent Form	1.2	
Participant Information Sheet	1.2	
Protocol	1	05 August 2013
Questionnaire: Questionnaire Cover Sheet		
Questionnaire: Validated Questionnaire	1	06 August 2013
Questionnaire: Validated Questionnaire - Reading the Mind in the Eyes		06 August 2013
Questionnaire: IIP 32 and 64		
Questionnaire: ECR-R		
REC application		14 August 2013
Referees or other scientific critique report		01 February 2013
Response to Request for Further Information		17 October 2013

### **Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

### **After ethical review**

#### Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

**13/LO/1421**

**Please quote this number on all correspondence**

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

With the Committee's best wishes for the success of this project.

Yours sincerely



**Chair**



*Enclosures:* "After ethical review – guidance for researchers" [\[SL-AR2\]](#)

*Copy to:* *Professor Neville Punchard*



## Appendix E. University of East London ethical approval confirmation letter

### PRACTICE CHECKLIST (Professional Doctorates)

**SUPERVISOR:** James Walsh

**ASSESSOR:** Kate Hefferon

**STUDENT:** Stephen Rock  
12/08/2013

**DATE (sent to assessor):**

**Proposed research topic:** A study of the relationship between transliminality and interpersonal difficulties: Is the severity of presenting difficulties in a clinical population related to sensitivity to unconscious psychological material?

**Course:** Professional Doctorate in Clinical Psychology

- |                                                                                                                                                                                    |     |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------|
| 1. Will free and informed consent of participants be obtained?                                                                                                                     | YE  |             |
| 2. If there is any deception is it justified?                                                                                                                                      | N/A |             |
| 3. Will information obtained remain confidential?                                                                                                                                  | YES |             |
| 4. Will participants be made aware of their right to withdraw at any time?                                                                                                         | YES |             |
| 5. Will participants be adequately debriefed?                                                                                                                                      | NO  | (see below) |
| 6. If this study involves observation does it respect participants' privacy?                                                                                                       | NA  |             |
| 7. If the proposal involves participants whose free and informed consent may be in question (e.g. for reasons of age, mental or emotional incapacity), are they treated ethically? | NA  |             |
| 8. Is procedure that might cause distress to participants ethical?                                                                                                                 | NA  |             |
| 9. If there are inducements to take part in the project is this ethical?                                                                                                           | NA  |             |
| 10. If there are any other ethical issues involved, are they a problem?                                                                                                            | NA  |             |

### APPROVED

	YES, PENDING MINOR CONDITIONS	
--	-------------------------------	--

### MINOR CONDITIONS:

**3.3-** Please draft and include a debrief sheet for them to take away with them that includes all relevant information (e.g. contact of researcher, what will happen to the data, contact number for support services in case they experience distress after the research).

**4.1** Is IRAS enough or should you be going through full NHS ethics? If not, do you have IRAS? You obviously can not conduct research without the appropriate levels of NHS ethics.

- Do you have CRB? This wasn't included. Please provide evidence.



Appendices:

Information sheet: Please include information on what will happen to the data once it has left the hospital (e.g. analysed and data kept how? For how long?; will you use for publications? You have this on consent form but needs to be in info sheet

Debrief sheet- Please include.

**REASONS FOR NON APPROVAL:**

Assessor initials: KH

Date: October 2013

<b>RESEARCHER RISK ASSESSMENT CHECKLIST (BSc/MSc/MA)</b>
----------------------------------------------------------

**SUPERVISOR:** James Walsh

**ASSESSOR:** Kate Hefferon

**STUDENT:** Stephen Rock  
12/08/2013

**DATE (sent to assessor):**

**Proposed research topic:** A study of the relationship between transliminality and interpersonal difficulties: Is the severity of presenting difficulties in a clinical population related to sensitivity to unconscious psychological material?

**Course:** Professional Doctorate in Clinical Psychology

Would the proposed project expose the researcher to any of the following kinds of hazard?

- |    |                                        |    |
|----|----------------------------------------|----|
| 1  | Emotional                              | NO |
| 2. | Physical                               | NO |
| 3. | Other<br>(e.g. health & safety issues) | NO |

If you've answered YES to any of the above please estimate the chance of the researcher being harmed as: HIGH / MED / LOW

**APPROVED**

YES		
-----	--	--

**MINOR CONDITIONS:**

**REASONS FOR NON APPROVAL:**

Assessor initials: KH

Date: October 2013

## SCHOOL OF PSYCHOLOGY

Dean: Professor Mark N. O. Davies, PhD, CPsychol, CBiol.



### School of Psychology Professional Doctorate Programmes

To Whom It May Concern:

This is to confirm that the Professional Doctorate candidate named in the attached ethics approval is conducting research as part of the requirements of the Professional Doctorate programme on which he/she is enrolled.

The Research Ethics Committee of the School of Psychology, University of East London, has approved this candidate's research ethics application and he/she is therefore covered by the University's indemnity insurance policy while conducting the research. This policy should normally cover for any untoward event. The University does not offer 'no fault' cover, so in the event of an untoward occurrence leading to a claim against the institution, the claimant would be obliged to bring an action against the University and seek compensation through the courts.

As the candidate is a student of the University of East London, the University will act as the sponsor of his/her research. UEL will also fund expenses arising from the research, such as photocopying and postage.

Yours faithfully,

Dr. Mark Finn

Chair of the School of Psychology Ethics Sub-Committee

Stratford Campus, Water Lane, Stratford, London E15 4LZ  
tel: +44 (0)20 8223 4966 fax: +44 (0)20 8223 4937  
e-mail: [mno.davies@uel.ac.uk](mailto:mno.davies@uel.ac.uk) web: [www.uel.ac.uk/psychology](http://www.uel.ac.uk/psychology)



The University of East London has campuses at London Docklands and Stratford  
If you have any special access or communication requirements for your visit, please let us know. MINICOM 020 8223 2853



## Appendix F. Participant Information Sheet (clinical sample)



### **Participant Information Sheet**

#### **Research title: How do unconscious processes effect how people relate to one another?**

Thoughts, feelings and behaviours are influenced by activity in our minds that we not aware of. This kind of activity is often described as the unconscious. There is already some research evidence showing that from person to person there are differences in how much thoughts, feelings and behaviour are influenced by unconscious activity. The aim of this research study is to see if there are links between unconscious processes and the extent to which people are affected by difficulties in relationships.

Your participation could help inform future research, practice and service delivery both at the Trust level and in other services too.

If you agree to take part, you will be asked to complete four questionnaires. The questionnaires have been enclosed so you can complete them in your own time and bring them to your first assessment session at [NHS psychological therapies service]. The questionnaires are all in multiple choice format and you are not asked to give identifiable details or describe personal experiences. The four questionnaires ask you about your experiences of 1. Close relationships 2. Your interpretations of people's facial expressions 3. Your awareness of imagery,

ideas and emotions. 4. Difficult experiences in relationships. All together, these questionnaires should not take any longer than about 20 minutes to complete.

Information you share with mental health professionals during your assessment interview or subsequent therapy sessions will not be included in this research.

Your participation is voluntary and you can withdraw at any point without giving a reason and without consequence. This will not affect the treatment you receive from [NHS psychological therapies service]. All information which is collected is considered confidential and any dissemination of the project will preserve your anonymity. Confidentiality extends to the staff at [NHS psychological therapies service] so they will not see the information you provide on the questionnaires. Accordingly, if you do participate we ask that you place and seal completed questionnaires in an envelope that will be collected by a member of the research team.

This research has been sponsored by the University of East London (UEL). This research has been approved by UEL ethics committee and [NHS Trust] ethics committee. Data generated in the course of the research will be securely retained in accordance with NHS and UEL Data Protection Policy. This research is being undertaken for the purpose of a Professional Doctorate in Clinical Psychology thesis. If you have any concerns about the conduct of the investigator, researcher(s) or any other aspect of this research project, they should contact [NHS trust Advice and Complaints Service].

If you have questions at any point of this project, please contact me on the telephone number or e-mail address below.

Thank you for your time,

Stephen Rock  
Trainee Clinical Psychologist  
University of East London  
E-mail Address: [u1138198@uel.ac.uk](mailto:u1138198@uel.ac.uk)

Supervised by:  
Dr James Walsh  
Senior Lecturer  
University of East London

## Appendix G. Participant Consent Form (clinical sample)



### Participant Consent Form

**Research title: How do unconscious processes effect how people relate to one another?’**

In order to participate in this project, please read, tick the appropriate boxes and sign this form.

- |                                                                                                                                                                                                                              | Yes                      | No                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| 1. I have read and understand the enclosed information sheet. I have been given a copy to keep and have had the opportunity to ask questions.                                                                                | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. I understand my participation in this project is voluntary and that I can ask questions at any time and I am aware I can withdraw at any point without giving a reason and without consequence.                           | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. I agree to complete the four questionnaires and allow the researcher to access information relating to the outcome of my assessment. I understand that this information does not relate to the content of the assessment. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. I understand that the information I provide may be used in presentations, reports and any subsequent journal articles. This is on the agreement that my anonymity will be preserved.                                      | <input type="checkbox"/> | <input type="checkbox"/> |

5. I know how to contact the investigator running this project if necessary.

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

## Appendix H. Participant Consent Form (non-clinical)



### Participant Consent Form

**Research title: How do unconscious processes effect how people relate to one another?'**

In order to participate in this project, please read, tick the appropriate boxes and sign this form.

Yes      No

1. I have read and understand the information sheet.

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

2. I understand that the information I provide may be used in presentations, reports and any subsequent journal articles. This is on the agreement that my anonymity will be preserved.

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

3. I know how to contact the investigator running this project if necessary.

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

## Appendix I. NHS Research and Development Approval (Site 1)



### Research and Development

4<sup>th</sup> December 2013

Dear [REDACTED]

**Study title: A study of the relationship between transliminality and interpersonal difficulties: Is the severity of presenting difficulties in a clinical population related to sensitivity to unconscious psychological material?**

**Ref: 5033-2013**

Thank you for your application to [REDACTED] for research governance approval of the above named study.

I am pleased to inform you that you have all the necessary internal and external regulatory approvals to proceed. Details of your research project and any associated supporting documentation will be stored on an electronic database administered by the R&D Department.

This approval is valid in the following sites:

- [REDACTED]

The documents reviewed for this approval were:

Document	Version	Date
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		17 June 2013
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Investigator CV [REDACTED]		
Academic supervisor CV: Anna Stone		17 June 2013

Academic supervisor CV: James Walsh		17 June 2013
Protocol	1	5 August 2013
Participant Information Sheet	1.2	
Participant Consent Form	1.2	
Questionnaire: Validated Questionnaire		6 August 2013
Questionnaire: Validated Questionnaire - Reading the Mind in the Eyes		6 August 2013
Questionnaire: IIP 32 and 64		
Questionnaire: ECR-R		
NRES Committee [REDACTED]	13.LO.1421	24 October 2013
[REDACTED] Favourable Opinion Letter		
Arthur.J.Gallagher International Certificate of Insurance		29 July 2013
R&D Form locked and signed: 130949/533701/14/327		
SSI Form locked and signed: 130949/533344/6/769/203473/286495		28 November 2013
Letter of Invitation	1.2	

#### Conditions of approval

- **If recruitment wishes to span to community mental health teams then further R&D review and approval will be necessary**
- **[REDACTED] (listed in the SSI form) need to submit their CV's to the R&D governance office for review prior to commencing work on the study**

The approval covers the period stated in the Research Ethics Committee (REC) application and will be extended in line with any amendments agreed by the REC. Research must commence within 12 months of the issue date of this letter. Any delay beyond this may require a new review of the project resources.

Please alert the Research and Development Office if significant developments occur as the study progresses, whether in relation to the safety of individuals or to scientific direction.

Please ensure that you comply fully with the Department of Health Research Governance Framework, in particular that you are aware of and fully discharge your responsibilities in respect to Data Protection, Health and Safety, financial probity, ethics and scientific quality. You should refer in particular to Sections 3.5 and 3.6 of the Research Governance Framework.

Please ensure that all information regarding patients or staff remains secure and strictly confidential at all times. Ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice, Data Protection Act and Human Rights Act. Unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.





### **Amendments**

Project amendment details dated after the issue of this approval letter should be emailed to the Research and Development Office for formal approval.

### **ICH-GCP Monitoring**

The Trust has a duty to ensure that all research is conducted in accordance with the Research Governance Framework and to ICH-GCP standards. In order to ensure compliance the Trust undertakes random audits. If your project is selected you will be given 4 weeks notice to prepare all documentation for inspection. The trust undertakes annual monitoring of all research studies, please respond to any requests for information. Failure to do this will result in the suspension of research governance approval.

I wish you luck with your project and would be grateful if you could inform me when the project is complete or due to be closed on this site.

Yours sincerely,



**Research and Development Manager**

CC:  
CI: u1138198@uel.ac.uk  
Lead CLRN / Sponsor: n.punchard@uel.ac.uk

## Appendix J. Confirmation of approval for addition NHS Participant Identification Centre (PIC)



13 February 2014

Dr James Walsh  
School of Psychology  
University of East London, Stratford Campus  
Water Lane  
London  
E15 4LZ

Dear Dr Walsh

<b>Study Title:</b> Transliminality and interpersonal difficulties		
<b>R&amp;D reference:</b> 130949		
<b>REC reference:</b> 13/LO/1421		
This NHS PIC Permission is based on the REC favourable opinion given on <b>24 October 2013</b> . The potential participants will be referred to the PI/LC stated below who is based at the <b>University of East London, Stratford Campus</b> .		
<b>Name of the trust</b>	<b>Name of current PI/LC at research site</b>	<b>Date of permission issue(d)</b>
[Redacted]	Mr Stephen R Rock	13 February 2014
If any information on this document is altered after the date of issue, this document will be deemed INVALID		

<b>Specific Conditions of Permission (if applicable)</b>
PIC site limited to ( [Redacted] am) only
If any information on this document is altered after the date of issue, this document will be deemed INVALID

I am pleased to confirm that any site within **the trusts identified above** can act as a PIC for the above study subject to the following conditions:

- Any site within **the trusts identified above** that is acting as a PIC **MUST** indicate their willingness to participate by completing the second page of this letter and returning it to our office.
- Please note that it is the responsibility of the Chief Investigator/Principal Investigator for the research study to ensure that this PIC agreement confirmation slip is completed for each participating PIC site and returned to the R&D office. Audits will be conducted on randomly selected PIC sites to ensure this requirement of R&D approval is adhered to.
- The role of the relevant sites will be restricted to identifying potential patients. No research procedures will be conducted in these PICs and these sites **will not** take on the duty of care for patients in relation to the research study; this responsibility will be retained by the external research site.
- The ethically approved details and relevant guidelines, including data protection, are adhered to.
- The Trust accepts no responsibility, and provides no indemnity, for any patient-related research procedures, including recruitment and informed consent. Please ensure that all members of

the research team are aware of their responsibilities as researchers. For more details on these responsibilities, please check the [REDACTED] k.

We would like to wish you every success with your project.

Yours sincerely,

[REDACTED]

Research Management & Governance Manager

Cc: Mr Stephen R Rock, Clinical Psychology, School of Psychology Stratford Campus, London E15 4LZ

Professor Neville Punchard, School of Health, Science and Bioscience, Stratford Campus, London, E15 4LZ

## **Appendix K. UEL ethical approval of amendments relating to the recruitment of the non-clinical sample**

**-UNIVERSITY OF EAST LONDON  
School of Psychology**

### **REQUEST FOR AMENDMENT TO AN ETHICS APPLICATION**

#### **FOR BSc, MSc/MA & TAUGHT PROFESSIONAL DOCTORATE STUDENTS**

**Please complete this form if you are requesting approval for proposed amendment(s) to an ethics application that has been approved by the School of Psychology.**

Note that approval must be given for significant change to research procedure that impacts on ethical protocol. If you are not sure about whether your proposed amendment warrants approval consult your supervisor or contact Dr Mark Finn (Chair of the School Research Ethics Committee).

#### **HOW TO COMPLETE & SUBMIT THE REQUEST**

1. Complete the request form electronically and accurately.
2. Type your name in the 'student's signature' section (page 2).
3. When submitting this request form, ensure that all necessary documents are attached (see

below).

4. Using your UEL email address, email the completed request form along with associated documents to: Dr Mark Finn at [m.finn@uel.ac.uk](mailto:m.finn@uel.ac.uk)
5. Your request form will be returned to you via your UEL email address with reviewer's response box completed. This will normally be within five days. Keep a copy of the approval to submit with your project/dissertation/thesis.
6. Recruitment and data collection are **not** to commence until your proposed amendment has been approved.

### **REQUIRED DOCUMENTS**

1. A copy of your previously approved ethics application with proposed amendments(s) added as tracked changes.
2. Copies of updated documents that may relate to your proposed amendment(s). For example an updated recruitment notice, updated participant information letter, updated consent form etc.
3. A copy of the approval of your initial ethics application.

Name of applicant:	Stephen Rock
Programme of study:	Doctorate in Clinical Psychology
Title of research:	Transliminality and Interpersonal Difficulties
Name of supervisor:	James Walsh

Briefly outline the nature of your proposed amendment(s) and associated rationale(s) in the boxes below

<b>Proposed amendment</b>	<b>Rationale</b>
The addition of recruitment from the normal population. At present I have ethical approval for recruiting participants from a clinical sample drawn from clients using NHS psychological therapy services.	The widening of the inclusion criteria is due to the limited time until my thesis submission (May 12 <sup>th</sup> 2014) and the low response rate from attempts to recruit participants through the NHS. The recruitment of a clinical sample will continue until the end of April but to increase the likelihood of achieving a sufficiently powered analysis, recruitment from the normal population is a viable
The recruitment of participants from the normal population will utilise opportunity sampling methods. This will involve inviting	

<p>participants from the following sources to complete the questionnaires online:</p> <ul style="list-style-type: none"> <li>- Facebook contacts</li> <li>- Personal email contacts</li> <li>- Online psychology research forums</li> <li>- Professional email contacts (pending permission from my NHS service manager)</li> </ul>	<p>alternative. I hope to achieve a sample containing a normally distributed range of interpersonal difficulties for a cross-sectional analysis. The addition of participants from the normal population is likely to increase the number of participants scoring at the low end of interpersonal difficulties, supplementing the higher scoring clinical sample.</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Please tick	YES	NO
Is your supervisor aware of your proposed amendment(s) and agree to them?	YES	

Student's signature (please type your name): Stephen Rock

Date: 17<sup>th</sup> February 2014

TO BE COMPLETED BY REVIEWER		
Amendment(s) approved	YES	
<p align="center"><b>Comments</b></p> <p>Please, however, note the following conditions: (There is no need to report back re how these are met).</p> <ol style="list-style-type: none"> <li>1. On the invitation and debrief letters to the non-clinical sample, please add Dr Walsh's contact details. In these letters participants should be directed to Dr Mark Finn as the Chair of the School of Psychology Research Ethics Committee and <b>not</b> the University Ethics Committee. Please add Dr Finn's contact details.</li> <li>2. In the debrief letter for non-clinical participants it is suggested that participants 'distressed' by their participation contact the researcher for</li> </ol>		

support and guidance. This implies the potential offer of counselling and this is not the researcher's function. Please delete this insinuation and replace with the contact details of appropriate support agencies/organisations – e.g. Relate (UK).

Reviewer: M. Finn

Date: 18/02/14